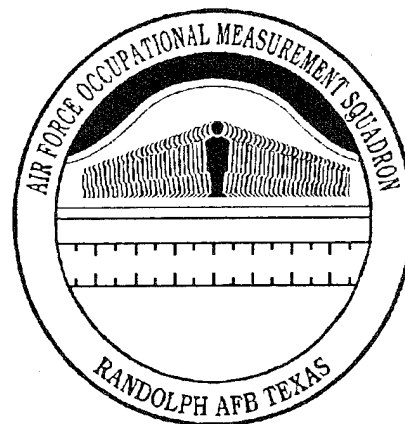




**UNITED STATES
AIR FORCE**



OCCUPATIONAL SURVEY REPORT

DTIC QUALITY INSPECTED

**MEDICAL LABORATORY AND HISTOPATHOLOGY
CAREER LADDERS**

AFSCs 4T0X1/X2

AFPT 90-4T0-033

JANUARY 1996

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
1550 5th STREET EAST
RANDOLPH AFB, TEXAS 78150-4449**

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* Attachments for 4T0X1

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PREFACE

This report presents the results of an Air Force Occupational Survey of the AFSC 4T0X1, Medical Laboratory and AFSC 4T0X2, Histopathology career ladders. Authority to conduct occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

Chief Master Sergeant Jeffery L. Milligan, Inventory Development Specialist, developed the survey instrument. Mr. James T. "Tom" Duffy, Occupational Analyst, analyzed the data and wrote the final report. Lt Sheon H. Mendoza provided computer programming support and Mr. Richard G. Ramos provided administrative support. Mr. Daniel E. Dreher, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS), reviewed and approved this report for release.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to the AFOMS, Attention: Chief, Occupational Analysis Flight (OMY), 1550 5th Street East, Randolph AFB Texas 78150-4449 (DSN 487-6623).

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SUMMARY OF RESULTS

1. Survey Coverage: The AFSC 4T0X1 Medical Laboratory was surveyed to identify changes in the career ladder over the past 5 years. The AFSC 4T0X2 Histopathology career ladder had not been surveyed to date. Survey results are based on responses from 1,149 AFSC 4T0X1 personnel (66 percent of the assigned population) and 72 AFSC 4T0X2 personnel (58 percent of their assigned population). Skill levels and paygrades were well represented for both AFSCs.
2. Career Ladder Structure: Structure analysis identified three clusters and eight jobs: General Clinical Chemistry Cluster, Superintendent Cluster, Histopathology Cluster, Bacteriology Job, Blood Banking Job, Junior Lab Job, Immunology Job, Instructor Job, Research Job, Systems Computer Job, and Environmental Chemistry Job.
3. Career Ladder Progression: After completion of the AFSC 4T031 Phase I basic resident course, 4T0X1 personnel attend a Phase II course at one of over 19 locations, while 4T0X2 personnel attend a Phase II course at Walter Reed Army Medical Center. AFSC 4T0X1 career field personnel follow a normal career progression pattern that includes a decrease in technical task performance and an increase in supervisory performance at the 7-skill level. AFSC 4T0X2 7-skill level career ladder personnel, while spending the majority of their time performing supervisory tasks, follow the same career progression path but indicate performing some technical tasks as well. Nine-skill level personnel and Chief Enlisted Managers are the upper level supervisors of these two career ladders as AFSCs 4T0X1 and 4T0X2 merge at the 9-skill level.
4. Training Analysis: Matching survey data to the AFSC 4T0X1 Specialty Training Standard (STS) and Plans of Instruction (POI) J4AQR4T031-000 (Phase I) and J5AZO92450 (Phase II) revealed numerous performance coded elements in all three documents not supported by survey data. Training personnel and Subject-Matter Experts (SMEs) should review these documents and the Training Extract to determine if these elements warrant retention. AFSC 4T0X2 STS and POI J5ABD92451 (Phase II) performance coded elements were well supported by survey data.
5. Job Satisfaction Analysis: Overall AFSC 4T0X1 and 4T0X2 respondents appear quite satisfied with their jobs. When compared to other Medical AFSCs surveyed in 1994, AFSC 4T0X1 and 4T0X2 members in the 1-48 months, 49-96 months, and 97+ months total active federal military service (TAFMS) groups indicated higher responses than respondents in the comparative sample in job interest, perceived use of talents and training, and sense of accomplishment. However, AFSC 4T0X1 reenlistment intentions are slightly lower for the 1-48 months and 97+ months groups, while the 49-96 months groups are the same as the comparative sample.

AFSC 4T0X2 respondents indicated higher responses for job interest in the 49-96 months and 97+ months TAFMS groups, while the 1-48 months TAFMS group was slightly lower than the comparative sample. Perceived use of talents, training, and sense of accomplishment

responses for all three TAFMS groups is the same or higher than the comparative sample. However, reenlistment intentions for the 1-48 months TAFMS group is below 50 percent and could be cause for alarm. Reenlistment intentions for the 97+ months TAFMS group is slightly lower than those of the comparative sample, but 22 percent of these respondents indicate they will retire.

6. *Implications:* AFMAN 36-2108 *Specialty Descriptions* for the AFSC 4T0X1 and 4T0X2 career ladders are well supported by survey data. Individual analysis of each skill level specialty description could not be accomplished due to the manner in which the descriptions are written in both AFMAN 36-2108 and the Career Field Education and Training Plans for both AFSCs. There are no separate skill level descriptions in these documents. Training documents for both AFSCs need to be reviewed by Training personnel and SMEs as numerous proficiency coded elements in both the STSs and POIs are not supported by survey data. Job satisfaction is high in both AFSCs and the only problem that appears to exist is within the AFSC 4T0X2 1-48 months TAFMS group reenlistment intentions. Only 48 percent of these group members indicate they will reenlist.

**OCCUPATIONAL SURVEY REPORT (OSR)
MEDICAL LABORATORY CAREER LADDER
(AFSC 4T0X1)
AND
HISTOPATHOLOGY CAREER LADDER
(AFSC 4T0X2)**

INTRODUCTION

This is a report of an occupational survey of the Medical Laboratory career ladder (AFSC 4T0X1) and the Histopathology career ladder (AFSC 4T0X2) conducted by the Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS). This survey will ensure current data for use in identifying changes in the Medical Laboratory career ladder over the past 5 years. AFSC 4T0X1 (then AFSC 924X0) personnel were last surveyed in 1989. This will be the first OSR for Histopathology personnel.

Background

According to the specialty descriptions in *AFSC 4T0X1 Career Field Education & Training Plan (CFETP)*, Medical Laboratory Superintendents/Chief Enlisted Managers manage all clinical laboratory functions, in addition to supervising education and training development activities such as coordinating with Phase I and Phase II training sites. Medical Laboratory Apprentice/Journeymen/Craftsmen test and analyze specimens of human origin and other substances by established scientific laboratory techniques to aid in diagnosing, treating, and preventing diseases or to support medical research and supervise medical laboratory activities.

Anatomic Pathology Superintendents/Chief Enlisted Managers (CEM), according to the specialty descriptions in CFETP 4T0X2, manage all anatomic pathology, plus supervise education and training development activities such as coordinating with Phase I and Phase II training sites. Histotechnology Apprentices/Journeymen/Craftsmen test and analyze specimens of human origin and other substances by established scientific histotechnology procedures to aid in diagnosing, treating, and preventing diseases or to support medical research, and supervise histotechnology activities.

Initial 3-skill level training for AFSC 4T0X1 and 4T0X2 personnel is currently provided through two phases of instruction for both AFSCs. Both attend a Phase I, 17-week course at Sheppard AFB TX. The Medical Laboratory Apprentice course, J3AQR4T031/4T032-000, covers: basic theory and skills, collection, preparation, and analysis of blood and biological

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fluids, and other substances by standard procedures used in medical laboratories to aid the physician in the diagnosis, treatment, and prevention of disease. Emphasis is on routine methodology employed in the fields of urinalysis, hematology, blood banking, immunology, clinical chemistry, bacteriology, mycology, parasitology, and introduction to medical laboratory automated data processing and workload reporting.

Upon completion of the Phase I course, AFSC 4T0X1 personnel attend J4ABO4T031-000, Medical Laboratory Apprentice. The 36-week Phase II training is conducted at any one of 19 designated hospitals. This course uses actual patient specimens and simulated specimens to perform fundamental techniques used in a medical laboratory. Emphasis is placed on the proper collection, processing and analysis of specimens, and accurate reporting of results in urinalysis, hematology, blood banking, immunology, clinical chemistry, bacteriology, mycology, and parasitology. AFSC 4T0X2 personnel, after completion of Phase I training, attend course J5ABD4T032-000, located at the Armed Forces Institute of Pathology. This 20-week course covers processing specimens and slides for histologic study, histochemistry and special tissue staining, assisting in autopsies, and performing Histopathology administration.

Entry into the 4T0X1 career ladder requires a General Armed Forces Vocational Aptitude Test Battery (ASVAB) score of General 53. 4T0X2 entry requires a ASVAB score of General 43. In addition, the Strength and Stamina Requirement of "G" (lifting a weight of 40 lbs) must be met or exceeded for both AFSCs.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI), AFPT 90-4T0-033, dated August 1994. A tentative task list was prepared after reviewing pertinent career ladder publications and directives and tasks from previous applicable OSRs. The preliminary task list was refined and validated through personal interviews with 52 subject-matter experts (SMEs) at the following locations:

<u>BASE</u>	<u>REASON FOR VISIT</u>
Sheppard AFB TX	Technical Training School
Barksdale AFB LA	Class C Laboratory
Maxwell AFB AL	Class B Laboratory
Keesler AFB MS	Class A Laboratory
Lackland AFB TX	Wilford Hall Medical Center "Super Lab"
Brooks AFB TX	3 Unique Labs: Epidemiology, Drug, and Occupational/Environmental Health
Walter Reed Medical Center	Armed Forces Institute of Pathology (AFIP)

Others contacted included Air Force functional and resource managers and the career field training manager. The resulting JI contained a comprehensive listing of 973 tasks grouped under 24 duty headings, with a background section requesting such information as present job, functional area, training completed, type of medical facility, class of medical facility, training effectiveness, and methods of slide staining. Questions also pertained to working with patients with Acquired Immune Deficiency Syndrome, training and policies in protection from contracting infectious diseases, protective measures, contracted infectious or communicable disease, cross-training because of concern about contracting infectious or communicable diseases, performing analyses on external proficiency samples, certification by a national accrediting organization, and computers used in present job. Also requested was information on grade, time in present job, time in service, time in career field, and job satisfaction indicators.

Survey Administration

From November 1994 through February 1995, base training offices at operational bases worldwide administered the inventory to all eligible DAFSC 4T0X1/X2 personnel. Members eligible for the survey consisted of the total assigned 3-, 5-, 7-, and 9-skill level/CEM population, excluding the following: (1) hospitalized personnel; (2) personnel in transition for a permanent change of station; (3) personnel retiring within the time the inventories were administered to the field; and (4) personnel in their jobs less than 6 weeks. Participants were selected from a computer-generated mailing list obtained from personnel data tapes maintained by Air Force Personnel Center, Randolph AFB Texas.

Each individual who completed the inventory first filled in an identification and biographical information section and then checked each task performed in his or her current job. After checking tasks performed, each individual rated the tasks checked on a 9-point scale showing relative time spent on that task, compared to other tasks performed. The ratings ranged from 1 (very small amount time spent) to 9 (very large amount time spent).

To determine relative time spent for each task, all of the incumbent's ratings are assumed to account for 100 percent of time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time spent on each task.

Survey Sample

Selection criteria was utilized to ensure the survey sample represented an accurate representation across skill levels and paygrades. Table 1 reflects AFSC distribution in the survey sample by MAJCOM. Table 2 reflects the survey distribution by paygrade groups. As shown by both tables, the survey sample accurately reflects the overall populations of each career ladder.

TABLE 1

MAJCOM REPRESENTATION OF TOTAL SAMPLE

<u>COMMAND</u>	<u>AFSC 4TOX1</u>		<u>AFSC 4TOX2</u>	
	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AETC	35	31	35	21
ACC	19	22	11	14
AFMC	17	16	17	24
AMC	13	15	21	22
PACAF	5	5	6	6
USAFE	4	4	3	1
AFSPACE	4	3	0	0
AF ELM	2	2	5	7
USAF A	1	1	2	5
OTHER	*	*	0	0
			<u>AFSC 4TOX1</u>	<u>AFSC 4TOX2</u>
TOTAL ASSIGNED			1,772	124
TOTAL ELIGIBLE			1,442	112
PERCENT OF ASSIGNED			81	90
PERCENT OF SURVEYED IN SAMPLE			70	64

OTHER: AFDW AND AFSOC

* INDICATES LESS THAN 1%

TABLE 2

PAYGRADE DISTRIBUTION OF TOTAL SAMPLE

<u>PAYGRADE</u>	<u>AFSC 4T0X1</u>		<u>AFSC 4T0X2</u>	
	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
E-1 E-4	62	60	66	63
E-5	20	21	20	24
E-6	9	9	8	5
E-7	7	8	6	8
E-8	1	1	0	0
E-9	*	*	0	0

* LESS THAN 1%

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 4T0X1/X2 personnel (generally E-6 or E-7 craftsmen) also completed a second booklet for either training emphasis (TE) or task difficulty (TD). The TE and TD booklets were processed separately from the JIs. This information is used in a number of analyses discussed in more detail within this report.

Training Emphasis (TE). Training emphasis is defined as the degree of emphasis that should be placed on each task for structured training of first-enlistment personnel. Structured training is defined as resident technical schools, field training detachments, mobile training teams, formal on-the-job training (OJT), or any other organized training method. Forty-six experienced AFSC 4T0X1 and 19 AFSC 4T0X2 NCOs rated the tasks in the inventory on a 9-point scale ranging from 1 (extremely low TE) to 9 (extremely high TE). Overall agreement among the raters was acceptable.

The average TE rating for AFSC 4T0X1 is 2.35, with a standard deviation of 1.80. Tasks with a TE rating of 4.15 or greater are considered important to train new AFSC 4T0X1 personnel to perform.

AFSC 4T0X2 has a TE rating of 1.12, with a standard deviation of 1.66. Tasks with a TE rating of 2.78 or higher are considered important to train personnel entering AFSC 4T0X2 to perform.

Task Difficulty (TD). Task difficulty is defined as the amount of time needed to learn to perform each task satisfactorily. Fifty-eight experienced AFSC 4T0X1/X2 supervisors rated the difficulty of the tasks in the inventory using a 9-point scale ranging from 1 (extremely low difficulty) to 9 (extremely high difficulty). Interrater agreement among these respondents was extremely high. TD ratings are normally adjusted so tasks of average difficulty have a value of 5.00 and a standard deviation of 1.00. Any task with a difficulty of 6.00 or greater is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TD and TE ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting Air Force Specialty entry-level jobs.

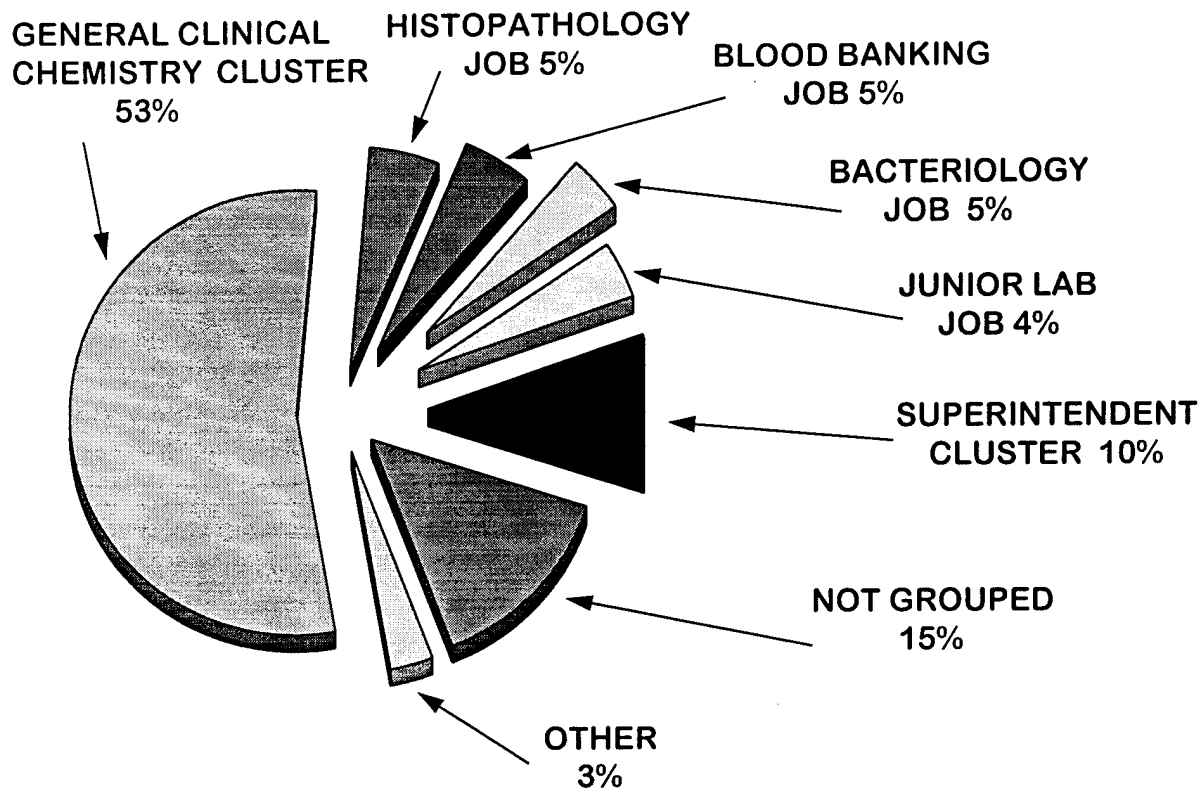
CAREER LADDER STRUCTURE

The first step in the analysis process is to identify the structure of career ladders in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the *Job*. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a *Cluster*. The job structure resulting from this grouping process (the various jobs within the career ladder) can be used to evaluate the changes that have occurred in the AFSCs over the past 5 years. The above terminology will be used in the discussion of the AFSC 4T0X1/X2 career ladders.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three clusters, and eight jobs were identified within the surveyed career ladders. Figure 1 illustrates the jobs performed by AFSC 4T0X1/X2 personnel. AFSC 4T0X1 members can be found in all jobs except the Histopathology cluster, which contains only AFSC 4T0X2 personnel.



OTHER: INCLUDES IMMUNOLOGY JOB, INSTRUCTOR JOB, RESEARCH JOB, SYSTEMS COMPUTER JOB, AND ENVIRONMENTAL CHEMISTRY JOB.

Figure 1. Identified job structure and percentages of total survey sample.

A listing of these job clusters and independent jobs (IJs) is provided below. The stage (STG) number shown beside each title references computer-printed information; the letter "N" represents the number of personnel in each group.

I. GENERAL CLINICAL CHEMISTRY CLUSTER (STG042, N=654)

- A. Blood Gas Lab
- B. Hematology
- C. Automated Clinical Chemistry
- D. Medical Readiness
- E. Microbiology
- F. Clinical Chemistry Supervisor
- G. Small Clinic NCOIC

II. BACTERIOLOGY JOB (STG174, N=63)

- III. BLOOD BANKING JOB (STG142, N=59)
- IV. JUNIOR LAB JOB (STG109, N=50)
- V. IMMUNOLOGY JOB (STG274, N=6)
- VI. RESEARCH JOB (STG199, N=5)
- VII. SUPERINTENDENT CLUSTER (STG082, N=126)
 - A. Shipping NCO
 - B. Supply NCO
- VIII. INSTRUCTOR JOB (STG043, N=23)
- IX. SYSTEMS COMPUTER JOB (STG187, N=6)
- X. HISTOPATHOLOGY CLUSTER (STG098, N=68)
 - A. Histotech Supervisor
 - B. Histotech
- XI. ENVIRONMENTAL CHEMISTRY JOB (STG044, N=9)

The respondents forming these groups account for 85 percent of the survey sample. The remaining 15 percent were performing tasks which did not group with any of the other defined jobs. Some of the job titles given by respondents which were representative of these personnel include: Admin Clerk, Generalist, Chief Contracting Function, and AF Cytology Coordinator.

Group Descriptions

The following paragraphs contain brief descriptions of the three clusters and eight jobs identified through the career ladder structure analysis. Appendix A lists representative tasks performed by identified cluster and job groups. Table 3 displays time spent on duties, while Table 4 provides demographic information for each cluster and job discussed within this report.

Another way to illustrate these jobs is to summarize tasks performed into groups of tasks (task modules). This allows for a very concise display of where job incumbents spend most of their time and develops a comprehensive overview of each job. Each job/cluster description contains a display of related task modules. This display shows the number of tasks included in a module, the average percent time spent on that module, and an average percent of members performing the particular task module. These modules were identified through CODAP copformance clustering, which calculates the probability that members who perform one task

TABLE 3

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

	GENERAL CLINICAL CHEMISTRY CLUSTER (STG042)	BACTER- IOLOGY JOB (STG174)	BLOOD BANKING JOB (STG142)	JUNIOR LAB JOB (STG109)	IMMUNO- LOGY JOB (STG274)	RESEARCH JOB (STG199)
<u>DUTIES</u>						
A ORGANIZING AND PLANNING	3	3	3	3	2	10
B DIRECTING AND IMPLEMENTING	2	2	2	2	2	6
C EVALUATING AND INSPECTING	2	3	2	1	2	8
D TRAINING	1	2	3	1	2	2
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	7	6	6	16	6	8
F PERFORMING GENERAL LABORATORY ACTIVITIES	20	14	22	52	30	27
G PERFORMING LABORATORY COMPUTER ACTIVITIES	2	2	2	6	4	5
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	*	*	0	*	*	11
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	23	1	1	1	0	6
J PERFORMING SPECIAL CHEMISTRY PROCEDURES	2	*	1	*	14	*
K PERFORMING SEROLOGY PROCEDURES	1	3	2	1	37	0
L PERFORMING BLOOD BANKING PROCEDURES	5	1	47	1	*	0
M PERFORMING HEMATOLOGICAL PROCEDURES	9	1	5	1	0	2
N PERFORMING COAGULATION PROCEDURES	3	*	2	*	0	0
O PERFORMING BACTERIOLOGICAL PROCEDURES	9	46	2	1	1	3
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	*	2	*	0	0	0
Q PERFORMING PARASITOLOGICAL PROCEDURES	2	9	*	*	0	0
R PERFORMING URINE TESTING PROCEDURES	6	1	*	10	0	0
S PERFORMING DRUG TESTING PROCEDURES	*	*	0	0	0	1
T PERFORMING SURGICAL GROSS PROCEDURES	*	*	0	*	0	1
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	*	*	0	*	0	1
V PERFORMING SPECIAL STAINING PROCEDURES	*	*	0	*	0	1
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	*	0	0	0	0	*
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	2	3	3	3	1	6

TABLE 3 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

DUTIES	SUPERIN- TENDENT CLUSTER (STG082)	INSTRUC- TOR JOB (STG043)	SYSTEMS COMPUTER JOB (STG187)	HISTOPA- THOLOGY CLUSTER (STG098)	ENVIRON- MENTAL CHEMISTRY JOB (STG082)
A ORGANIZING AND PLANNING	23	11	9	5	4
B DIRECTING AND IMPLEMENTING	17	11	6	3	1
C EVALUATING AND INSPECTING	19	6	8	3	1
D TRAINING	7	34	4	2	*
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	17	4	5	10	9
F PERFORMING GENERAL LABORATORY ACTIVITIES	8	10	6	16	28
G PERFORMING LABORATORY COMPUTER ACTIVITIES	3	1	52	2	4
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	*	*	1	0	36
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	1	5	2	*	3
J PERFORMING SPECIAL CHEMISTRY PROCEDURES	*	*	*	*	0
K PERFORMING SEROLOGY PROCEDURES	*	1	*	0	0
L PERFORMING BLOOD BANKING PROCEDURES	1	7	0	0	0
M PERFORMING HEMATOLOGICAL PROCEDURES	*	4	0	*	0
N PERFORMING COAGULATION PROCEDURES	*	1	0	*	0
O PERFORMING BACTERIOLOGICAL PROCEDURES	1	2	0	1	1
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	*	*	0	0	0
Q PERFORMING PARASITOLOGICAL PROCEDURES	*	*	0	0	0
R PERFORMING URINE TESTING PROCEDURES	*	3	0	0	0
S PERFORMING DRUG TESTING PROCEDURES	*	0	0	0	0
T PERFORMING SURGICAL GROSS PROCEDURES	*	*	0	15	0
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	*	0	0	16	0
V PERFORMING SPECIAL STAINING PROCEDURES	*	0	0	11	0
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	*	0	0	12	0
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	2	0	9	4	12

* Less than 1 percent

TABLE 4

SELECTED BACKGROUND DATA FOR CAREER LADDER JOBS

	GENERAL CLINICAL CHEMISTRY CLUSTER	BACTER- IOLOGY JOB	BLOOD BANKING JOB	JUNIOR LAB JOB	IMMUNO- LOGY JOB	RE- SEARCH JOB
NUMBER IN GROUP	654	63	55	37	6	5
PERCENT OF SAMPLE	53%	5%	4%	3%	*	*
<u>DAFSC DISTRIBUTION</u>						
4T031	24%	24%	24%	46%	33%	0%
4T051	61%	57%	62%	49%	50%	80%
4T071	15%	19%	13%	5%	17%	20%
4T032	0%	0%	0%	0%	0%	0%
4T052	0%	0%	2%	0%	0%	0%
4T072	0%	0%	0%	0%	0%	0%
4T099	0%	0%	0%	0%	0%	0%
4T000	0%	0%	0%	0%	0%	0%
<u>PAYGRADE DISTRIBUTION</u>						
E-1 TO E-4	69%	64%	71%	92%	50%	20%
E-5	23%	21%	27%	5%	17%	60%
E-6	6%	13%	2%	3%	33%	20%
E-7	3%	3%	0%	0%	0%	0%
E-8	0%	0%	0%	0%	0%	0%
E-9	0%	0%	0%	0%	0%	0%
AVERAGE NUMBER OF TASKS PERFORMED	159	134	92	48	78	140
AVERAGE MONTHS TAFMS	78	84	70	47	108	112
PERCENT IN FIRST ENLISTMENT	39%	40%	40%	67%	34%	0%

* INDICATES LESS THAN 1%

TABLE 4 (CONTINUED)

SELECTED BACKGROUND DATA FOR CAREER LADDER JOBS

	SUPERIN- TENDENT CLUSTER	INSTRUC- TOR JOB	SYSTEMS COMPUTER JOB	HISTOPATH- OLOGY CLUSTER	ENVIRON- MENTAL CHEMISTR JOB
NUMBER IN GROUP	126	23	6	68	9
PERCENT OF SAMPLE	10%	2%	*	*	*
<u>DAFSC DISTRIBUTION</u>					
4TO31	1%	4%	0%	1%	22%
4TO51	12%	43%	83%	1%	67%
4TO71	67%	52%	17%	0%	11%
4TO32	0%	0%	0%	12%	0%
4TO52	0%	0%	0%	68%	0%
4TO72	2%	0%	0	18%	0%
4TO90	14%	0%	0%	0%	0%
4TO00	0%	0%	0%	0%	0%
<u>PAYGRADE DISTRIBUTION</u>					
E-1 TO E-4	4%	13%	17%	67%	89%
E-5	12%	43%	67%	25%	0%
E-6	25%	26%	0%	3%	11%
E-7	46%	17%	17%	6%	0%
E-8	10%	0%	0%	0%	0%
E-9	4%	0%	0%	0%	0%
AVERAGE NUMBER OF TASKS PERFORMED	110	79	63	120	37
AVERAGE MONTHS TAFMS	199	141	154	81	71
PERCENT IN FIRST ENLISTMENT	3%	0%	0%	39%	33%

* INDICATES LESS THAN 1 %

will also perform a second task or group of related tasks. Representative task modules are listed as part of the job description. The list of modules with respective tasks is presented in Appendix B.

I. GENERAL CLINICAL CHEMISTRY CLUSTER (STG045). The 654 members of this cluster represent 53 percent of the total survey sample. This is the largest cluster in the sample survey and represents the core work of the Medical Laboratory career ladder. Personnel within the General Clinical Chemistry Cluster spend nearly 40 percent of their time performing clinical chemistry, hematological and bacteriological procedures (see Table 3). In addition, members of the General Clinical Chemistry Cluster spend 20 percent of their job time performing general laboratory activities. On average, General Clinical Chemistry cluster members perform 159 tasks.

GENERAL CLINICAL CHEMISTRY CLUSTER	
Number of members	654
Percent of total sample	53%
Average number of tasks performed	159
Average time in present job	3.4 yrs
Average time in career field	6 yrs
Average TAFMS	6.5 yrs
Predominant paygrade	E-4

Representative tasks for this cluster include:

- draw blood samples from outpatients
- perform BUN tests using chemical analyzers
- run commercial assayed controls
- perform creatinine using chemical analyzers
- perform AST tests using chemical analyzers
- perform bilirubin tests using chemical analyzers
- perform calcium tests using chemical analyzers
- draw blood from inpatients

Representative task modules of this cluster include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0001	General Medical Lab	26	16	69
0004	Automated Clinical Chemistry	25	14	71
0002	Hematology	31	14	63
0010	Bacteriology	32	8	42
0012	Blood Banking	36	4	25

These data show the emphasis of this job is toward general clinical chemistry and the different sections that make up a Medical Laboratory. General medical lab, automated clinical chemistry, and hematology task modules consume the largest amount of time for this group.

Respondents holding this job vary only slightly across experience levels, skill levels, and paygrades. For example, the average time in the AFSC 4T0X1 career ladder for General Clinical Chemistry cluster members is 6 years. However, incumbents in this cluster may range from less than 1 year to over 18 years experience in the career ladder. Additionally, skill-level data for this job group indicate most members (61 percent) hold DAFSC 4T051, while 24 percent hold DAFSC 4T031 and 15 percent hold DAFSC 4T071. Survey data also show that this job is performed by personnel in paygrades ranging from E-2 through E-7 (primarily by E-3 through E-5 personnel).

Seven jobs were identified in the General Clinical Chemistry Cluster. These are: Blood Gas Lab, Hematology, Automated Clinical Chemistry, Medical Readiness, Microbiology, Clinical Chemistry Supervisor, and Small Clinic NCOIC. Although most of the members of the General Clinical Chemistry Cluster indicated they perform tasks pertaining to clinical chemistry procedures, these jobs warrant discussion on their own. A description of each of the seven jobs follows.

A. Blood Gas Lab (STG159). All of the members of this job indicate they are stationed at Lackland AFB TX and have a job title of Blood Gas Technician. They perform an average of 61 tasks, have a predominant paygrade of E-4, and 6 years in the career field. Sixty-seven percent are 5-levels and 24 percent hold the 3-level.

Representative tasks performed by this job are:

- perform arterial blood gas analysis using blood gas analyzers
- perform urinalyses using reagent strips on automated readers
- perform carbon dioxide (CO₂) tests using chemical analyzers
- perform microscopic urine sediment tests manually
- perform potassium tests using ISE
- validate tests results
- enter or update computerized QC data
- perform sodium tests using ISE

B. Hematology (STG176). The 58 members of this job indicate they spend over 25 percent of their time performing hematological procedures. They have a predominant paygrade of E-4, just over 6 years in the career field, and perform an average of 101 tasks. Fifty-five percent hold DAFSC 4T051, 22 percent hold DAFSC 4T031 and 22 percent hold 4T071.

Representative tasks for this job include:

- perform activated partial thromboplastin time (APTT) tests using coagulation analyzers
- perform RBC morphologies
- perform prothrombin (PT) test using coagulation analyzers
- stain blood smears using automatic stainers
- perform hemoglobin tests using hematology analyzers
- perform blood cell differentials using hand cell counters
- perform cell counts on CSF
- perform reticulocyte counts

C. Automated Clinical Chemistry (STG155). These job incumbents differ from other members of the General Clinical Chemistry Cluster in that they use automated equipment for almost all of the tasks they perform. With a predominant paygrade of E-4, they have just under 5 years TAFMS. They average 4.5 years time in the career field and spend 46 percent of their duty time performing tasks pertaining to clinical chemistry procedures. Members of this group perform an average of 99 tasks.

Representative tasks for OJT job members include:

- perform BUN tests using chemical analyzers
- perform bilirubin tests using chemical analyzers
- perform creatinine tests using chemical analyzers
- perform calcium tests using chemical analyzers
- perform alkaline phosphatase tests using chemical analyzers
- perform AST tests using chemical analyzers
- perform albumin tests using chemical analyzers
- perform cholesterol tests using chemical analyzers

D. Medical Readiness (STG160). Members in this job indicate spending 38 percent of their time performing tasks that pertain to general laboratory and medical readiness or mobility activities, and 16 percent of their time is spent on bacteriology procedures. With over 7 years TAFMS, these incumbents have a predominant paygrade of E-5. They perform an average of 137 tasks.

Representative task performed by members with this job are:

- initiate treatment for fractures
- initiate treatment for patients in shock
- perform patient carries using litter-method
- initiate treatment for injuries from chemical agents
- initiate treatment for open wounds
- store biological specimens

- perform urine reducing substances tests, such as clinitests
- initiate treatment for patients with dizziness
- perform patient carries using hand-method

E. Microbiology (STG168). Members of this job form the largest job in the General Clinical Chemistry Cluster. In addition to performing tasks pertaining to clinical chemistry and general laboratory activities, incumbents in this job also spend part of their duty time on bacteriological procedures (13 percent). Forty-nine percent of these members are in paygrade E-4, and average almost 6 years TAFMS. They perform an average of 169 tasks.

Representative tasks performed by this job include:

- perform macroscopic examinations of urine for color and appearance
- perform microscopic urine sediment tests manually
- perform primary cultures on urine
- perform primary cultures on throats
- draw blood samples from outpatients
- centrifuge biological specimens
- perform serum total protein tests using chemical analyzers
- perform creatinine kinase (CK) tests using chemical analyzers

F. Clinical Chemistry Supervisor (STG218). Eighty-seven percent of the incumbents in this job group have a paygrade of E-5 through E-7. They average 12 years TAFMS and are the senior members of the General Clinical Chemistry Cluster. Their time is divided among duties pertaining to general laboratory activities, clinical chemistry, laboratory administrative or supply activities, and organizing and planning. Members of this job indicate they hold job titles such as NCOICs of laboratories, or laboratory sections. They average performing 261 tasks with most being supervisory in nature.

Representative tasks performed by members of this job are:

- resolve technical problems for subordinates
- determine or establish work priorities
- draw blood samples from outpatients
- brief superiors on status of laboratory operations
- establish laboratory policies, such as operating instructions (OIs) or standing operating procedures
- notify medical professionals of test results or testing delays

G. Small Clinic NCOIC (STG151). The majority (70 percent) of the incumbents in this job indicate they are assigned to either Class C or Class D Medical Facilities and they hold the position of NCOIC. Even though they indicate being in a supervisory position, their job is technical in nature, as indicated by the amount of time spent on duties such as general laboratory

activities (21 percent), laboratory or supply activities (19 percent), bacteriological procedures (12 percent), and urine testing procedures (10 percent). Twenty percent of these members job time is being spent on supervisory duties which distinguishes them from other nonsupervisory jobs in the cluster. Members average 3.5 years on the job and just over 12 years in the career field. They perform an average of 122 tasks.

Representative tasks for this job group include:

- draw blood samples from outpatients
- maintain hard copy medical files, such as laboratory slips
- determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies
- notify medical professionals of test results of testing delays
- perform sulfosalicylic acids (SSAs) tests
- determine or establish work priorities
- perform microscopic urine sediment tests manually
- brief superiors on status of laboratory operations

II. BACTERIOLOGY JOB (STG174).

The 63 members of this job represent 5 percent of the total survey sample. Eighty-one percent indicate they are working in large (Class A or B) facilities and spend the majority (46 percent) of their time performing tasks pertaining to bacteriological procedures. They perform an average of 134 tasks that includes taking cultures of various kinds and interpreting the results.

Representative tasks for this cluster include:

- identify colony morphologies
- identify gram positive bacteria to species level
- perform primary cultures on urine
- perform rapid biochemical spot tests, such as indole or catalase
- identify gram negative bacteria to species level
- perform groupings of streptococci
- perform gonorrhea isolation tests
- perform primary cultures on eyes or ears
- identify gram positive bacteria to species level
- perform gram stains

BACTERIOLOGY JOB	
Number of members	63
Percent of total sample	5%
Average number of tasks performed	134
Average time in present job	2 yrs
Average time in career field	6 yrs
Average TAMS	7 yrs
Predominant paygrade	E-4

Incumbents have a predominant paygrade of E-4 and just over 2 years in their present job. With 6 years in the career field, these personnel average 7 years TAFMS.

Representative task modules of this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0010	Bacteriology	32	34	91
0001	General Medical Lab	26	11	52
0015	Parasitology	11	8	74

As shown by the above data, members in the Bacteriology job spend 34 percent of their job time performing tasks in the "Bacteriology" module. This is clearly the dominant task module for this job as the next module, General Medical Lab, accounts for only 11 percent of incumbents' job time. The third module in terms of overall job time is the "Parasitology" module. While this module accounts for only 8 percent of incumbents' overall job time, it goes hand-in hand with the Bacteriology task module.

III. BLOOD BANKING JOB (STG142).

The Blood Banking Job contains 59 respondents and represents 5 percent of the total survey sample. Members of this job, in addition to performing general laboratory activities, indicate they spend the majority (46 percent) of their time performing blood banking procedures. Tasks such as performing ABO groupings, antibody screens, and Rh typing are indicative of this job. Blood Banking Job members perform an average of 94 tasks.

BLOOD BANKING JOB	
Number of members	59
Percent of total sample	5%
Average number of tasks performed	94
Average time in present job	2.6 yrs
Average time in career field	5 yrs
Average TAMS	5.5 yrs
Predominant paygrade	E-4

Representative tasks for this job include:

- perform ABO groupings
- perform antibody screens
- issue blood or blood components
- perform indirect Coombs screens
- perform Rh typing
- store blood or blood components

- record blood bank refrigerator temperatures
- perform direct Coombs antiglobulin tests
- identify antibodies using commercial cell panels

Representative task modules for this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0012	Blood Banking	36	38	76
0001	General Medical Lab	26	18	53

These data show the emphasis of this job toward blood banking. Thirty-eight percent of the Blood Banking Job time is being spent in this task module. The general medical lab task module consumes another 18 percent of their job time.

Respondents in this job have a predominant paygrade of E-4 and average just over 2 years in the job. They average 3 years in the career field and over 5 years TAFMS. Sixty-four percent of these job incumbents are assigned to Class A facilities.

IV. JUNIOR LAB JOB (STG109). Members of this job represent 4 percent of the total survey sample. The majority of tasks performed by incumbents in the Junior Lab Job pertain to general laboratory and laboratory administration or supply activities, typical for junior personnel in a career ladder. They perform a relatively low number of tasks (44) as compared to the other cluster and job members in the total survey sample. They spend 53 percent of their job time (see Table 3) performing general laboratory activities.

JUNIOR LAB JOB	
Number of members	37
Percent of total sample	4%
Average number of tasks performed	44
Average time in present job	1.8 yrs
Average time in career field	3.4 yrs
Average TAMS	3.8 yrs
Predominant paygrade	E-3

Representative tasks for this IJ include:

- draw blood samples from outpatients
- draw blood samples from inpatients
- retrieve medical laboratory test results
- clean laboratory facilities or work areas, other than gross rooms
- collect capillary blood samples
- instruct patients on collections or submissions of biological specimens
- review laboratory request slips
- notify medical professionals of test results or testing delays

Representative task modules for this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0001	General Medical Lab	26	43	62
0002	Hematology	31	10	15
0007	Shipping	6	6	41
0006	Admin	7	4	23

These data clearly indicate that the members of the Junior Lab Job are performing general medical lab tasks and have not branched out into a specific laboratory section, with the exception of the 15 percent who are spending 10 percent of their time in the hematology task module. Members of this group are also spending time in the shipping and admin task modules.

Respondents in this job average just under 4 years TAFMS and under 3 years time in career ladder. Forty-nine percent have a paygrade of E-3.

V. IMMUNOLOGY JOB (STG274). Members of this job spend 80 percent of their job time performing tasks related to serology procedures, general laboratory activities, and special chemistry tests. They perform hepatitis antibody tests, syphilis screens and titers, and HIV tests. Incumbents also perform anti-DNA antibody screens, anti-DNA screens and numerous other screens and titers. Performing an average of 78 tasks, 4 of the members of this job indicate they work at Wilford Hall Medical Center. Also, four indicated a job title of Serology Technician, the other two indicated having a job title of NCOIC Serology.

IMMUNOLOGY JOB	
Number of members	6
Percent of total sample	Less than 1%
Average number of tasks performed	78
Average time in present job	3 yrs
Average time in career field	8.6 yrs
Average TAMS	9 yrs
Predominant paygrade	E-4

Representative tasks performed by members of this IJ are:

- perform hepatitis C antibody tests
- perform syphilis screens
- perform hepatitis B core antibody tests, IgG
- perform hepatitis B core antibody tests, IgM
- perform syphilis titers

- perform HIV tests
- perform hepatitis Bs antigen tests
- perform anti-DNA antibody titers

Representative task modules of this IJ include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0016	Hepatitis Testing	7	10	88
0017	Immunology/Serology	14	15	70
0018	Microbiology	13	13	69
0020	General Medical Lab	26	20	60

Members of the Immunology Job perform tasks in task modules that relate to Immunology/Serology procedures. Data indicates that 38 percent of these incumbents job time is spent on hepatitis testing, immunology/serology, and microbiology modules, with a large percentage of members performing.

Immunology job members have a predominant paygrade of E-4, and their time in the career ladder averages over 8 years with 9 years TAFMS. The two NCOICs in this job group are E-6s.

VI. RESEARCH JOB (STG199). Members of the Research IJ have a predominant paygrade of E-5 and average 9 years in the career ladder. Thirty-eight percent of their job time is spent performing tasks related to general laboratory activities and research, environmental, or occupational analytical procedures. In performing research, environmental, or occupational analytical procedures (11 percent in Duty H, more time than any other job in the sample survey), they collect and analyze research data, perform chemical analyses on biological samples, and collect or preserve cultures or samples from laboratory animals. Research IJ members perform an average of 140 tasks.

RESEARCH JOB	
Number of members	5
Percent of total sample	Less than 1%
Average number of tasks performed	140
Average time in present job	2.8 yrs
Average time in career field	9 yrs
Average TAMS	9.3 yrs
Predominant paygrade	E-5

Representative tasks performed by members of this IJ include:

- collect and analyze research data
- perform chemical analyses on biological samples
- collect or preserve cultures or samples from laboratory animals

- perform care or handling of laboratory animals
- draw blood samples from laboratory animals
- store hazardous chemicals, such as acids or carcinogens
- store reagents of standards, other than hazardous chemicals
- develop technical protocols for research projects

Representative task modules of this IJ include:

TM	Module Title	No. of Tasks	Percent Time Spent	Percent Members Performing
0014	Supervision	70	24	46
0001	General Medical Lab	26	11	51
0019	Research	4	3	70
0008	Clinical Chemistry	3	2	60

Although members of the Research IJ spend the largest amount of time in task modules pertaining to supervision and general medical lab, the main aspect of their job revolves around research.

VII. SUPERINTENDENT CLUSTER (STG082).

The 126 members of the Superintendent Cluster are clearly the senior group in the survey sample. They average over 15 years in the career field and almost 17 years TAFMS. Cluster members reported spending 66 percent of their time in traditional supervisory duties: organizing, planning, directing, implementing, inspecting, evaluating, and training. Another 17 percent of their time is spent performing administration or supply activities (see Table 3). Incumbents in this cluster represent 10 percent of the total survey sample and perform an average of 110 tasks.

SUPERINTENDENT CLUSTER	
Number of members	126
Percent of total sample	10%
Average number of tasks performed	110
Average time in present job	3 yrs
Average time in career field	15.6 yrs
Average TAMS	16.6 yrs
Predominant paygrade	E-7

Representative tasks performed by members of this cluster include:

- participate in meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting
- counsel personnel on personal or military-related matters
- determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies
- write EPRs

- evaluate personnel for compliance with performance standards
- assign personnel to duty positions
- coordinate laboratory activities with other agencies or organizations

Representative task modules of this IJ include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0014	Supervision	70	50	66
0020	Equipment/Supply	19	9	46
0006	Training	30	8	30
0003	Admin	7	3	41

As expected, members of the Superintendent Cluster spend high percentages of time in management-related task modules, particularly those related to supervision, training, and equipment or supply.

Incumbents have a predominant paygrade of E-7 and supervise and average of seven personnel. Fifty-six percent indicate they are spend most of their time in the Laboratory Administration functional area.

This cluster contains two jobs. The first, the Shipping NCO job, contains five members who oversee or inspect laboratory specimen shipments. They insure biological specimens are properly prepared for shipment using a variety of means, such as dry ice, wet ice, or civilian shipping instructions. Predominant duty titles for this group are "Superintendent Specimen Processing" and "NCOIC Shipping Department." Incumbents perform and average of 100 tasks and have a predominant paygrade of E-7.

The second job is the Supply NCO job. They perform and average of 73 tasks and spend 39 percent of their time performing tasks relating to laboratory administrative or supply activities. These tasks include completing purchase request forms, maintaining organizational equipment or supply records, completing equipment request forms, and maintaining supply stock levels. Thirty-eight percent of their time is also spent on supervisory duties such as organizing and planning, and evaluating and inspecting. The eight members of this job have a predominant paygrade of E-5 and average 16 years TAFMS.

VIII. INSTRUCTOR JOB (STG043). Of the 23 members in the Instructor Job, only 9 indicate they are Phase I resident course instructors, and the remaining 13 indicate they are either Phase II instructors or Phase II course supervisors. Thirty-four percent of their job time is spent performing tasks relating to training. Another 22 percent of their time revolves around duties involving organizing and planning, and directing and implementing (see Table 3). Incumbents perform an average of 79 tasks, an unusually large number for training personnel, thus indicating task performance in other areas that have a relationship to training. For example, tasks such as counseling personnel and inspecting or evaluating personnel for compliance with military or performance standards, can be performed in a training environment.

INSTRUCTOR JOB	
Number of members	23
Percent of total sample	2%
Average number of tasks performed	79
Average time in present job	3 yrs
Average time in career field	10.8 yrs
Average TAMS	11.8 yrs
Predominant paygrade	E-5

Representative tasks performed by members of this job are:

- evaluate progress of trainees
- maintain training records, charts, graphs, aids, devices, or files
- develop or prepare lesson plans
- counsel trainees on training progress
- administer or score training tests
- evaluate training methods or techniques
- conduct resident course classroom training
- counsel personnel on personal or military-related matters

Representative task modules of this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0021	Training	30	34	54
0014	Supervision	70	26	27
0001	General Medical Lab	26	6	21

These data clearly show the emphasis of this job on training duties and tasks, since incumbents spend 34 percent of their job time in that one task module. Supervisory and general medical lab tasks are also present in this job.

IX. SYSTEMS COMPUTER JOB (STG187).

The six members in this IJ indicate they spend the majority (52 percent) of their time on tasks that pertain to laboratory computer activities (see Table 3). These incumbents are the computer systems maintainers for the career ladder. Their job includes analyzing lab information systems, performing minor repairs of computer equipment, and troubleshooting computer stops or malfunctions. They are a more senior group in the career ladder averaging over 12 years in the career field and also over 12 years TAFMS. Incumbents perform an average of 63 tasks.

SYSTEMS COMPUTER JOB	
Number of members	6
Percent of total sample	Less than 1%
Average number of tasks performed	63
Average time in present job	3.2 yrs
Average time in career field	12.6 yrs
Average TAMS	12.8 yrs
Predominant paygrade	E-5

Representative tasks performed by members of this IJ are:

- perform system analyses on laboratory information systems
- perform minor repairs of computer equipment
- troubleshoot computer stops or malfunctions
- maintain access lists of personnel authorized use of on-line devices
- perform preventive maintenance on computer hardware
- configure computers to interface with laboratory equipment
- test new computer hardware or software products
- fabricate computer cables

Representative task modules of this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0022	Computer Systems	17	41	87
0014	Supervision	70	19	20
0011	Medical Readiness	31	8	40

As expected, the computer systems module consumes the highest portion of time for this IJ (41 percent). Incumbents spend an additional 27 percent of their time in the supervision and medical readiness task modules.

X. HISTOPATHOLOGY CLUSTER (STG098).

The 68 members of the Histopathology Cluster comprise 94 percent of the 72 AFSC 4T0X2 personnel in the total survey sample. The other four AFSC 4T0X2 members in the survey sample indicate they hold job titles of Hematology technician, Laboratory Supply technician, NCOIC Research Laboratory, and NCOIC Special Chemistry. Incumbents spend 54 percent of their time performing tasks pertaining to duties revolving around Histopathological areas such as routine histological, surgical gross, and special staining procedures. They also maintain morgues and assist in autopsies.

HISTOPATHOLOGY CLUSTER	
Number of members	68
Percent of total sample	2%
Average number of tasks performed	120
Average time in present job	3.5 yrs
Average time in career field	5.3 yrs
Average TAMS	6.8 yrs
Predominant paygrade	E-4

Representative tasks performed by members of this cluster are:

- coverslip tissues
- section tissues
- perform routine staining procedures
- distribute completed slides to pathologists
- perform QC on special staining procedures
- perform special stains to identify connective tissues
- perform special stains to identify pigments and minerals
- perform decalcification procedures

Representative task modules of this job include:

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0023	Histopathology	46	46	86
0007	Shipping	6	2	38
0001	General Medical Lab	26	10	30

Note that nearly half of their job time is spent on tasks associated in the Histopathology module. As expected, with the number of tissue samples being processed in-house or received from other units, shipping and general medical lab tasks are present in this job.

Members of this cluster average just under 4 years in their present job, over 5 years time in the career field, and have a predominant paygrade of E-4.

This cluster also contains two distinct jobs. The first, the Histotech Supervisor job, consists of the more experienced members (just under 10 years TAFMS) who spend 41 percent of their time performing tasks that pertain to laboratory administrative or supply activities, general lab activities, organizing and planning, and surgical gross procedures. The predominant duty titles for this group are "NCOIC, Histopathology" and "Superintendent, Anatomical Pathology." Incumbents perform an average of 201 tasks.

The second job is the Histotech job. Members of this group average over 5 years TAFMS and are the junior group of the two. They perform technical tasks that pertain to performing surgical gross procedures, routine pathological procedures, and maintaining morgues and assisting in autopsies. Seventy-three percent of these incumbents hold the 5-skill level (see Table 4) and they perform an average of 98 tasks. Of the top 25 tasks performed by this group, there are no supervisory tasks included (see Appendix A).

XI. ENVIRONMENTAL CHEMISTRY JOB (STG044). Of the nine members of the Environmental Chemistry IJ, eight are assigned to the Armstrong Laboratory at Brooks AFB TX. The predominant duty title for this group is "Environmental Chemistry Technician" (26 percent of their time being spent in this duty). They perform tasks such as, perform chemical analyses on: water samples, waste samples, and soil samples. One hundred percent of these incumbents belong to Air Force Materiel Command. Members perform an average of 37 tasks, the smallest number of any job group identified in the sample survey.

Representative tasks performed by members of this job are:

- perform chemical analyses on water samples
- perform chemical analyses on soil samples
- perform chemical analysis on waste samples
- prepare water samples for chemical analysis
- perform chemical analyses on air samples
- perform chemical analyses on industrial products
- perform chromatography
- perform chemical analyses on filters

Representative task modules of this job include:

ENVIRONMENTAL CHEMISTRY JOB	
Number of members	9
Percent of total sample	Less than 1%
Average number of tasks performed	37
Average time in present job	3 yrs
Average time in career field	5.4 yrs
Average TAMS	5.9 yrs
Predominant paygrade	E-4

<u>TM</u>	<u>Module Title</u>	<u>No. of Tasks</u>	<u>Percent Time Spent</u>	<u>Percent Members Performing</u>
0024	Environmental Lab	10	31	66
0008	Clinical Chemistry	3	2	22
0001	General Medical Lab	26	11	21

Members of the Environmental Chemistry Job spend the highest percentage of their time in the environmental lab module. The general medical lab and clinical chemistry modules are also present.

Members of this group have a predominant paygrade of E-4 and average 3 years on the job. They also average just over 5 years in the career field and almost 6 years TAFMS.

Comparison of Current Group Descriptions to Previous Study

AFSC 4T0X1

The results of the specialty job analysis were compared to the previous OSR, AFPT 90-924-857, dated August 1988. This analysis was conducted in a single survey and not combined with AFSC 4T0X2. The group descriptions for AFSC 4T0X1 in the previous survey were identified in 8 clusters and 13 independent job types (IJTs). Group descriptions for the current 4T0X1 survey are identified in two clusters and eight jobs. The majority of groups identified in the previous survey have again surfaced in this survey (see Table 5). Some group titles may have changed but the core of the jobs are the same. For example, General Medical Lab Personnel in the previous survey are now titled General Clinical Chemistry Personnel in the current survey. Four of the IJTs identified in the previous sample are not present in this sample. Those 4 IJTs are Military Entrance Processing Command (MEPCOM) Personnel IJT, Specimen Processing Operations Personnel IJT, Medical Readiness (CMRT) Training NCOs IJT, and Drug Testing Lab Technicians IJT. These IJTs are still present in the career ladder, but the numbers were too small to be grouped in the current survey. The career ladder classification structure still appears to be well defined.

AFSC 4TOX2

Since this is the first time AFSC 4T0X1, Histopathology, has had an OSR accomplished, a comparison to previous OSRs cannot be accomplished.

TABLE 5

AFSC 4T0X1 MEDICAL LABORATORY
COMPARISON OF MAJOR JOBS BETWEEN SURVEYS

CURRENT SURVEY (N=1,173)	PREVIOUS SURVEY (N=1,186)
GENERAL CLINICAL CHEMISTRY CLUSTER (53% OF SAMPLE)	GENERAL MEDICAL LAB PERSONNEL CLUSTER (36% OF SAMPLE)
	AUTOMATED CHEMISTRY BRANCH PERSONNEL CLUSTER (7% OF SAMPLE)
	HEMATOLOGY BRANCH/GENERAL LAB TECHNICIANS CLUSTER (7% OF SAMPLE)
	BLOOD GAS TECHNICIANS IJT (LESS THAN 1% OF SAMPLE)
BACTERIOLOGY JOB (5% OF SAMPLE)	MICROBIOLOGY BRANCH PERSONNEL CLUSTER (7% OF SAMPLE)
BLOOD BANKING JOB (4% OF SAMPLE)	TRANSFUSION BRANCH PERSONNEL CLUSTER (5% OF SAMPLE)
JUNIOR LAB JOB (3% OF SAMPLE)	JUNIOR MED LAB PERSONNEL/URINALYSIS SECTION IJT (1% OF SAMPLE)
IMMUNOLOGY JOB (LESS THAN 1% OF SAMPLE)	SEROLOGY BRANCH PERSONNEL IJT (LESS THAN 1% OF SAMPLE)
RESEARCH JOB (LESS THAN 1% OF SAMPLE)	RESEARCH LAB NCOs IJT (LESS THAN 1% OF SAMPLE)

TABLE 5 (CONTINUED)

AFSC 4T0X1 MEDICAL LABORATORY
COMPARISON OF MAJOR JOBS BETWEEN SURVEYS

CURRENT SURVEY (N=1,173)	PREVIOUS SURVEY (N=1,186)
SUPERINTENDENTS CLUSTER (10% OF CLUSTER)	NCOICs LABORATORY ADMINISTRATION CLUSTER (9% OF SAMPLE)
	NCOICs AND ASSISTANT NCOICs LABORATORY SERVICES CLUSTER (6% OF SAMPLE)
	SHIPPING AND RECEIVING SECTION TECHNICIANS IJT (1% OF SAMPLE)
INSTRUCTOR JOB (2% OF SAMPLE)	LAB SUPPLY NCOs (1% OF SAMPLE)
	PHASE 1 (BASIC COURSE) INSTRUCTORS IJT (LESS THAN 1% OF SAMPLE)
	MED LAB TRAINING PERSONNEL (1% OF SAMPLE)
SYSTEMS COMPUTER JOB (LESS THAN 1% OF SAMPLE)	MEDICAL LAB SYSTEMS BRANCH PERSONNEL CLUSTER (2% OF SAMPLE)
ENVIRONMENTAL CHEMISTRY JOB (LESS THAN 1% OF SAMPLE)	ENVIRONMENTAL CHEMISTRY LAB TECHNICIANS IJT (LESS THAN 1% OF SAMPLE)

Summary

AFSC 4TOX1

In summary, structure analysis identified two clusters and eight jobs. General Clinical Chemistry Cluster, Bacteriology Job, Blood Banking Job, Junior Lab Job, Superintendent Cluster, Instructor Job, and Research Job, Systems Computer Job, and Environmental Chemistry Job. Analysis reveals the Medical Laboratory career ladder to be fairly homogenous, with the core job being centered around the General Clinical Chemistry Cluster. The classification of facilities will for the most part determine what jobs are found in a medical laboratory. For example, a Class A facility may contain almost all jobs identified in the analysis, but a smaller class facility may not have the personnel or equipment to accomplish all jobs. And since training for basic resident students is divided into two phases, those larger facilities will be conducting Phase II training, while Phase I is accomplished at Sheppard AFB TX.

AFSC 4TOX2

Structure analysis also identified one cluster for AFSC 4TOX2, Histopathology. Within this cluster two jobs were identified, Histotech Supervisor and Histotechs. As with the Medical Lab personnel, the size plus the location of the facility will dictate what tasks these personnel perform.

SKILL AND EXPERIENCE ANALYSIS

Analysis of DAFSC Groups

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. DAFSC analysis examines differences in tasks performed between skill levels. This information may then be used to evaluate how well career ladder documents, such as AFMAN 36-2108 *Specialty Descriptions*, reflect what career ladder personnel are actually doing in the field.

AFSC 4T0X1

The distribution of AFSC 4T0X1 skill-level groups across career ladder clusters and jobs is displayed in Table 6. As can be seen, very high numbers of DAFSC 4T031, 4T051, and 4T071 members are in the core cluster of the career ladder, the General Clinical Chemistry Cluster. As personnel progress through the career ladder, they do begin to move into traditional management and supervisory roles, as indicated by the 85 7-skill level and 23 4T090/CEM personnel found in the Superintendent Cluster. Career ladder progression is typical in this AFSC.

TABLE 6

DISTRIBUTION OF AFSC 4TOX1 SKILL-LEVEL MEMBERS
ACROSS CAREER LADDER JOBS

<u>JOB</u>	4T031 (N=276)	4T051 (N=605)	4T071 (N=268)	4T090/00 (N=24)
GENERAL CLINICAL CHEMISTRY CLUSTER	157	396	100	0
BACTERIOLOGY JOB	15	36	12	0
BLOOD BANKING JOB	13	34	7	0
JUNIOR LAB JOB	17	18	2	0
IMMUNOLOGY JOB	2	3	1	0
RESEARCH JOB	0	4	1	0
SUPERINTENDENT CLUSTER	1	15	85	23
INSTRUCTOR JOB	1	10	12	0
SYSTEMS COMPUTER JOB	0	5	1	0
HISTOPATHOLOGY CLUSTER	1	1	0	0
ENVIRONMENTAL CHEMISTRY JOB	2	6	1	0
NOT GROUPED	67	77	46	1

Table 7 offers a better perspective by displaying the relative percent time spent on each duty across skill-level groups. As expected, 3- and 5-skill level personnel have little to do with supervisory functions (duties A, B, and C), but 7-skill level members spend a larger amount of time in these same duties. As can be seen in Table 7, members of 3- and 5-skill levels spend about the same amount of time in duties F through R. These duties represent the essence of jobs being performed by members of the Medical Laboratory career ladder. The bulk of 7-skill level members' time is being spent performing supervisory functions, as mentioned above, and in duties E and F (13 percent in each duty). Specific skill-level group discussions are presented below.

Descriptions and Comparisons of Skill-Level Groups

DAFSC 4T031. Three-skill level members perform an average of 102 tasks and average just over 2 years in the specialty. Most hold the grade of Airman First Class. Table 6 shows that 157 of the 276 members in this group perform in the General Clinical Chemistry Cluster. Fifty-five percent of their job time is spent performing tasks that pertain to performing general laboratory activities, clinical chemistry procedures, and bacteriological procedures. The remainder of their time is spread over the remaining duties (see Table 7) with the exception of those pertaining to histopathological functions (duties T, U, V, and W). Table 8 lists representative tasks these members perform. Examples of these tasks include; drawing blood samples from outpatients or inpatients, collecting infant phenylketonuria (PKU) screen specimens, cleaning laboratory or work areas, collecting capillary blood samples, and running biological specimens through the centrifuge.

DAFSC 4T051. Five-skill level members comprise the largest group in this career ladder. The 605 members of this group perform an average of 134 tasks and average 6 years in the career ladder. Over half (61 percent) of these members are Senior Airmen or Sergeants. As with 3-skill level members, over half of the 5-skill level airmen (396) are members of the General Clinical Chemistry Cluster (see Table 6). DAFSC 4T051 members spend also spend the majority (47 percent) of their time performing tasks relating to the same three duties as their 3-skill counterparts, those being duties F, I, and O (see Table 7). Table 9 lists representative tasks for these incumbents. Since many of these tasks are the same as those performed by 3-skill level personnel, combined 3- and 5-skill level data is used in comparing these groups with 7-skill level members.

DAFSC 4T071. Seven-skill level personnel perform an average of 131 tasks and average 14.5 years in the career ladder. The 268 members of this group have grades of Staff Sergeant (31 percent), Technical Sergeant (37 percent), and Master Sergeant (32 percent). Unlike the 3- and 5-skill level groups, the majority (67 percent) of this group's time is spent on tasks pertaining to duties A through E, supervisory, training, administration, and general lab (see Table 7). Representative tasks performed by 7-skill level personnel are listed in Table 10.

TABLE 7

TIME SPENT ON DUTIES BY MEMBERS OF AFSC 4T0X1 SKILL-LEVEL GROUPS
(RELATIVE PERCENT OF JOB TIME)

DUTIES	DAFSC 4T031 (N=276)				DAFSC 4T051 (N=605)				DAFSC 4T071 (N=268)				DAFSC 4T090/00 (N=24)			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A ORGANIZING AND PLANNING	1		3							14					30	
B DIRECTING AND IMPLEMENTING	1		2							10					22	
C INSPECTING AND EVALUATING	*		2							10					24	
D TRAINING	1		2							7					4	
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	5		8							13					9	
F PERFORMING GENERAL LABORATORY ACTIVITIES	26		22							13					3	
G PERFORMING LABORATORY COMPUTER ACTIVITIES	2		3							3					3	
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	1		1							1					*	
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	17		15							7					*	
J PERFORMING SPECIAL CHEMISTRY TESTS	1		2							1					*	
K PERFORMING SEROLOGY PROCEDURES	2		2							1					0	
L PERFORMING BLOOD BANKING PROCEDURES	7		7							3					1	
M PERFORMING HEMATOLOGICAL PROCEDURES	8		7							4					0	
N PERFORMING COAGULATION PROCEDURES	3		2							1					0	
O PERFORMING BACTERIOLOGICAL PROCEDURES	12		10							5					0	
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	1		*							*					0	
Q PERFORMING PARASITOLOGICAL PROCEDURES	2		2							1					0	
R PERFORMING URINE TESTING	6		5							2					0	
S PERFORMING DRUG TESTING PROCEDURES	1		*							*					0	
T PERFORMING SURGICAL GROSS PROCEDURES	*		*							*					0	
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	*		*							*					0	
V PERFORMING SPECIAL STAINING PROCEDURES	*		*							0					0	
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	*		*							*					*	
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	2		3							2					3	

* INDICATES LESS THAN 1 PERCENT

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T031 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=276)
F207 Draw blood samples from outpatients	89
F206 Draw blood samples from inpatients	88
F205 Collect infant phenylketonuria (PKU) screen specimens	65
F201 Clean laboratory facilities or work areas, other than gross rooms	65
F204 Collect capillary blood samples	63
F200 Centrifuge biological specimens	61
F254 Store biological specimens	61
F251 Run commercial assayed controls	58
F253 Run patient controls	55
F249 Retrieve medical laboratory test results	54
F189 Batch specimens	53
I355 Perform BUN tests using chemical analyzers	53
R852 Perform urinalyses using reagent strips on automatic readers	51
F244 Prepare reagents or standards	51
F256 Store reagents or standards, other than hazardous chemicals	50
O786 Perform primary cultures on urine	49
E166 Notify medical professionals of tests results or testing delays	49
R838 Measure 24-hour urine volumes	48
O785 Perform primary cultures on throats	48
F213 Instruct patients on collections or submissions of biological specimens	47
R843 Perform macroscopic examinations or urine for color and appearance	47
F247 Remove or dispose of infectious waste materials	47
F187 Aliquot samples	47
F246 Remove or dispose of hazardous waste materials	45
F226 Perform operator or preventive maintenance on laboratory equipment	44
R845 Perform microscopic urine sediment tests manually	43

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T051 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=605)
F207 Draw blood samples from outpatients	85
F201 Clean laboratory facilities or work areas, other than gross rooms	79
F205 Draw blood samples from inpatients	77
F187 Aliquot samples	70
F249 Retrieve medical laboratory tests results	69
F189 Batch specimens	69
F251 Run commercial assayed controls	69
E166 Notify medical professionals of test results or testing delays	68
F254 Store biological specimens	67
F205 Collect infant phenylketonuria (PKU) screen specimens	65
F258 Validate test results	64
F204 Collect capillary blood samples	62
F200 Centrifuge biological specimens	62
A19 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	61
F244 Prepare reagents or standards	61
F250 Review laboratory requests slips	60
E177 Record patient test results on laboratory slips	60
F226 Perform operator or preventive maintenance on laboratory equipment	60
F213 Instruct patients on collections or submissions of biological specimens	59
I355 Perform BUN tests using chemical analyzers	59
F247 Remove or dispose of infectious waste materials	58
F253 Run patient controls	57
F256 Store reagents or standards, other than hazardous chemicals	56
R843 Perform macroscopic examinations of urine for color and appearance	54
R845 Perform microscopic urine sediment tests manually	53
F246 Remove or dispose of hazardous waste materials	50

TABLE 10

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T071 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=268)
A19 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	88
C95 Write EPRs	76
B37 Counsel personnel on personal or military-related matters	74
A3 Brief superiors on status of laboratory operations	74
A7 Determine or establish work priorities	72
B61 Supervise Medical Laboratory Journeymen (AFSC 4T051)	69
C67 Conduct performance feedback worksheet (PFW) evaluation sessions	69
C81 Evaluate personnel for compliance with performance standards	68
A5 determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	64
F207 Draw blood samples from outpatients	63
A14 Establish laboratory policies, such as office instructions (OIs) or standard operating procedures (SOPs)	63
A15 Establish performance standards ^o for subordinates	62
B55 Resolve technical problems for subordinates	62
B36 Conduct supervisory orientations of newly assigned personnel	60
C96 Write recommendations for awards or decorations	60
A18 Establish work schedules	59
E133 Brief supervisors concerning purchases of equipment, supplies, or reagents	59
A24 Plan or schedule work assignments or priorities	57
A1 Assign personnel to duty positions	56
A4 Coordinate laboratory activities with other agencies or organizations	54
B53 Interpret policies, directives, or procedures for subordinates	53
C90 Inspect personnel for compliance with military standards	53
F250 Review laboratory request slips	52
D120 Evaluate progress of trainers	51
C51 Evaluate personnel for compliance with performance standards	42
E120 Format data storage media on systems, other than mainframes	42
E146 Perform communications-computer system initialization procedures on systems, other than mainframes	42
G260 Correct syntax errors	41
C61 Write recommendations for awards or decorations	41
A12 Establish performance standards for subordinates	41

Table 11 shows tasks which best distinguish between 3/5- and 7-skill level members. A higher percentage of 7-skill level members perform those typical supervisory tasks, reflecting the first-line supervisory role of these more senior personnel. Examples of tasks with the greatest difference in members performing include writing EPRs, counseling personnel on personal or military matters, evaluating personnel for compliance with performance standards, and establishing work schedules.

DAFSC 4T090/00. The 19 9-skill level members in the sample survey average performing 93 tasks and average just over 18 years in the career ladder. Seven of this group's members have a grade of Master Sergeant, while the remaining 12 are Senior Master Sergeants. Chief Enlisted Managers (CEMs) average almost 23 years in the career ladder and perform an average of 104 tasks. Reflecting a much higher level of supervision, 10 4T090 and 3 of the 5 CEMs in this group indicate job titles of Medical Laboratory Superintendents. Table 12 displays representative tasks performed by members of this group.

As Table 7 shows, members of the DAFSC 4T090/00 group are clearly the upper level supervisors of the career ladder. Sixty-six percent of their job time is spent performing tasks in duties A, B, and C. Because they perform almost purely supervisory tasks, they differ from their 7-skill level counterparts by indicating a complete lack of technical task performance (see Table 13). Although 7-skill level personnel perform supervisory tasks, a higher percentage of the 9-skill level/CEM members are performing the same tasks (see Table 13). Examples of these higher performance tasks are; initiate actions required to correct substandard performance of personnel, inspect personnel for compliance with military standards, and interpret policies, directives, or procedures for subordinates.

AFSC 4T0X2

Table 14 displays the distribution of AFSC 4T0X2 skill-level group across career ladder clusters and jobs. As expected, almost all DAFSC 4T032, 4T052, and 4T072 personnel perform jobs in the Histopathology Cluster. Career ladder progression is typical in this AFSC, as it was in the 4T0X1 AFSC, and this progression can be seen in Table 15. Three and 5-skill level members spend more time in duties T through W than in supervisory duties A, B, and C. Seven skill-level members in AFSC 4T0X2 spend the bulk of their time performing supervisory functions and in duties E and F (18 and 12 percent respectively), but they are also spending 29 percent of their time performing tasks pertaining to technical procedures in duties T through W. Discussed below are specific skill-level descriptions.

Descriptions and Comparisons of Skill-Level Groups

DAFSC 4T032. Members of this group perform an average of 79 tasks and average less than 2 years in the career field. Five personnel hold the grade of Airmen First Class (five members) while the remaining three incumbents are Senior Airmen/Sergeants. Table 14 shows that all

TABLE 11

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 4T051 AND DAFSC 4T071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

<u>TASKS</u>	<u>4T031/51</u> <u>(N=605)</u>	<u>4T071</u> <u>(N=268)</u>	<u>DIFFERENCE</u>
F201 Clean laboratory facilities or work areas, other than gross room	79	36	43
F206 Draw blood from inpatients	77	36	41
F251 Run commercial assayed controls	70	41	29
F205 Collect infant phenylketonuria screen samples	65	36	29
F189 Batch specimens	69	42	27
F254 Store biological specimens	67	45	22
<hr/>			
C95 Write EPRs	0	76	-76
B37 Counsel personnel on personnel or military-related matters	0	74	-74
C81 Evaluate personnel for compliance with performance standards	0	68	-68
A5 Determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	0	64	-64
A18 Establish work schedules	0	59	-59
B60 Supervise Medical Laboratory Apprentices (AFSC 4T031)	0	51	-51

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T090/00 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=24)
A3 Brief superiors on status of laboratory operations	100
B37 Counsel personnel on personal or military-related matters	96
A19 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	96
A4 Coordinate laboratory activities with other agencies or organizations	96
A5 Determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	92
A7 Determine or establish work priorities	92
C95 Write EPRs	88
C81 Evaluate personnel for compliance with performance standards	88
A1 Assign personnel to duty positions	88
B50 Initiate actions required to correct substandard performance of personnel	88
A15 Establish performance standards for subordinates	88
A28 Prepare agenda for meetings, such as staff meetings, conferences, or workshops	88
C82 Evaluate personnel for promotion, demotion, reclassification, or special awards	83
C96 Write recommendations for awards or decorations	83
B53 Interpret policies, directives, or procedures for subordinates	83
A14 Establish laboratory policies, such as office instructions (OIs) or standard operating procedures (SOPs)	83
C90 Inspect personnel for compliance with military standards	83
B35 Conduct staff meetings or briefings	79
A29 Review drafts of regulations, manuals, or other directives	79
A24 Plan or schedule work assignments or priorities	79
B38 Direct development or maintenance of status indicators, such as boards, graphs, or charts	79
B62 Supervise Medical Laboratory Journeymen (AFSC 4T071)	75
C67 Conduct performance feedback worksheet (PFW) evaluation sessions	75
A17 Establish work methods, controls, or performance standards	70
C89 Indorse enlisted performance reports (EPRs)	67

TABLE 13

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 4T071 AND DAFSC 4T090/00 PERSONNEL
(PERCENT MEMBERS PERFORMING)

<u>TASKS</u>	<u>4T071 (N=605)</u>	<u>4T090/00 (N=268)</u>	<u>DIFFERENCE</u>
F207 Draw blood from outpatients	63	0	63
B36 Conduct supervisory orientations of newly assigned personnel	59	0	59
F250 Review laboratory request slips	52	0	52
E132 Annotate shopping guides	52	0	52
D120 Evaluate progress of trainees	51	0	51
E187 Aliquot samples	50	0	50
<hr/>			
B50 Initiate actions required to correct substandard performance of personnel	55	88	-33
C90 Inspect personnel for compliance with military standards	53	83	-30
B53 Interpret policies, directives, or procedures for subordinates	53	83	-30
A15 Establish performance standards for subordinates	61	88	-27
C96 Write recommendations for awards or decorations	60	83	-23
A14 Establish laboratory policies, such as operating instructions (OIs), or standard operating procedures (SOPs)	63	83	-20

TABLE 14

**DISTRIBUTION OF AFSC 4T0X2 SKILL-LEVEL MEMBERS
ACROSS CAREER LADDER JOBS**

<u>JOB</u>	4T032 (N=8)	4T052 (N=48)	4T072 (N=16)
GENERAL CLINICAL CHEMISTRY CLUSTER	0	0	0
BACTERIOLOGY JOB	0	0	0
BLOOD BANKING JOB	0	2	0
JUNIOR LAB JOB	0	0	0
IMMUNOLOGY JOB	0	0	0
RESEARCH JOB	0	0	0
SUPERINTENDENT CLUSTER	0	0	2
INSTRUCTOR JOB	0	0	0
SYSTEMS COMPUTER JOB	0	0	0
HISTOPATHOLOGY CLUSTER	8	46	12
ENVIRONMENTAL CHEMISTRY JOB	0	0	0
NOT GROUPED	0	0	2

TABLE 15

**TIME SPENT ON DUTIES BY MEMBERS OF AFSC 4T0X2 SKILL-LEVEL GROUPS
(RELATIVE PERCENT OF JOB TIME)**

DUTIES	DAFSC 4T032 (N=8)	DAFSC 4T052 (N=48)	DAFSC 4T072 (N=16)
A ORGANIZING AND PLANNING	2	4	10
B DIRECTING AND IMPLEMENTING	1	2	6
C INSPECTING AND EVALUATING	1	3	11
D TRAINING	1	1	4
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	6	10	18
F PERFORMING GENERAL LABORATORY ACTIVITIES	17	17	12
G PERFORMING LABORATORY COMPUTER ACTIVITIES	1	1	2
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	0	*	1
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	0	1	*
J PERFORMING SPECIAL CHEMISTRY TESTS	0	*	*
K PERFORMING SEROLOGY PROCEDURES	0	2	0
L PERFORMING BLOOD BANKING PROCEDURES	0	1	0
M PERFORMING HEMATOLOGICAL PROCEDURES	1	1	*
N PERFORMING COAGULATION PROCEDURES	0	*	0
O PERFORMING BACTERIOLOGICAL PROCEDURES	1	*	*
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	0	0	0
Q PERFORMING PARASITOLOGICAL PROCEDURES	*	*	0
R PERFORMING URINE TESTING	0	*	0
S PERFORMING DRUG TESTING PROCEDURES	0	0	0
T PERFORMING SURGICAL GROSS PROCEDURES	20	15	8
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	19	16	9
V PERFORMING SPECIAL STAINING PROCEDURES	13	10	6
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	16	11	8
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	0	4	4

* INDICATES LESS THAN 1 PERCENT

eight members in this group are in the Histopathology Cluster. Sixty-eight percent of their job time is spent on tasks that pertain to performing surgical gross procedures, routine histological procedures, special staining procedures, and maintaining morgues and assisting in autopsies. The largest remaining amount of their time (16 percent) is spent performing general laboratory activities. Table 16 lists representative tasks these members perform. Examples of these tasks include; performing routine staining procedures, performing QC on special stains, distributing completed slides to pathologists, and embedding tissues.

DAFSC 4T052. Five-skill level members of the 4T0X2 career ladder also comprise the largest group in the career ladder. The 48 members holding the 5-skill level perform an average of 112 tasks and have an average of just over 4 years in the career ladder. Sixty-three percent hold the rank of Senior Airman or Sergeant. As expected, 46 of the 48 members of this group are performing tasks in the Histopathology Cluster (see Table 14). Like their 3-skill level counterparts, they spend the majority of their job time in duties T through W, with a very small amount of time being spent on supervisory duties. Table 17 lists representative tasks for these members. As with the AFSC 4T0X1 3- and 5-skill level personnel, DAFSC 4T032 skill level members perform many of the same tasks as their 5-skill level counterparts. Because of this, 3- and 5-skill level combined data will be used in comparing these groups with 7-skill level members.

DAFSC 4T072. Seven-skill level personnel average 12 years in the career ladder and perform an average of 145 tasks. The 16 members of this group hold grades that range from Staff Sergeant to Master Sergeant. Although most of their job time is involved with performing supervisory duties, they indicate they spend some time performing technical tasks in duties T through W as well (see Table 15). Representative tasks performed by members of this group are listed in Table 18.

Table 19 shows a higher percentage of 5-skill level personnel perform technical tasks, while a higher percentage of 7-skill levels perform supervisory tasks.

AFMAN 36-2108 *Specialty Descriptions* Analysis

Survey data were compared to the AFMAN 36-2108 *Specialty Descriptions* for AFSC 4T0X1 Medical Laboratory and AFSC 4T0X2 Histopathology Apprentices, Journeymen, and Craftsmen, dated 31 October 1994. The descriptions for the skill levels were accurate, depicting the technical aspects of the job, as well as the supervisory responsibilities previously described in the DAFSC analysis. Also, the *Specialty Descriptions* for AFSC 4T090 Superintendent and CEM Code 4T000 were compared to survey data and accurately reflect the management responsibilities previously described. The descriptions also capture the primary responsibilities of the above AFSCs and CEM Code members in the applicable clusters and jobs identified by the job structure analysis process.

TABLE 16

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T032 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=8)
U907 Perform routine staining procedures	100
V914 Perform QC on special stains	100
U897 Distribute completed slides to pathologists	100
U898 Embed tissues	100
U901 File tissues, blocks, or slides	100
U896 Coverslip tissues	100
U905 Perform QC of sectioning instruments	100
U906 Perform QC of stainline reagents	100
V923 Perform special stains to identify pigments and minerals	100
V919 Perform special stains to identify fats and lipids in tissues	100
T887 Perform specimen accessioning procedures	88
U903 Label tissues or slides	88
T893 Process tissues	88
T879 Clean and disinfect gross rooms	88
T895 Store wet tissues	88
T894 Replace tissue processor reagents, such as alcohol or xylene	88
W929 Disinfect autopsy areas	88
W925 Clean and disinfect morgue instruments	88
V921 Perform special stains to identify mucopolysaccharides	88
W937 Prepare bodies for release	88
W924 Assist pathologists in removal of body organs	88
V918 Perform special stains to identify connective tissues	88
F254 Store biological specimens	88
W932 Label and store autopsy specimens	88
W936 Prepare bodies for postmortem examinations	88
T883 Perform decalcification procedures	88

TABLE 17

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T052 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=48)
V918 Perform special stains to identify connective tissues	96
U896 Coverslip tissues	94
U898 Embed tissues	94
V923 Perform special stains to identify pigments and minerals	90
U897 Distribute completed slides to pathologists	94
T883 Perform decalcification procedures	94
T893 Process tissues	92
T894 Replace tissue processor reagents, such as alcohol or xylene	92
V917 Perform special stains to identify amyloids in tissues	92
U907 Perform routine staining procedures	90
U901 File tissues, blocks, or slides	90
V914 Perform QC on special stains	90
V923 Perform special stains to identify pigments and minerals	90
T887 Perform specimen accessioning procedures	88
T879 Clean and disinfect gross rooms	88
T895 Store wet tissues	88
U903 Label tissues or slides	85
T884 Perform frozen sections	85
T881 Dispose of wet tissues	85
V919 Perform special stains to identify fats and lipids in tissues	85
W924 Assist pathologists in removal of body organs	85
W925 Clean and disinfect morgue instruments	85
W932 Label and store autopsy specimens	88
F255 Store hazardous chemicals, such as acids or carcinogens	83
T877 Assist physicians in surgical gross procedures	81
U906 Perform QC of stainline reagents	81
F201 Clean laboratory facilities or work areas, other than gross rooms	81

TABLE 18

REPRESENTATIVE TASKS PERFORMED BY AFSC 4T072 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=16)
A7 Determine or establish work priorities	88
E170 Prepare microscopic slides for shipment	88
E132 Annotate shopping guides	81
E133 Brief supervisors concerning purchases of equipment, supplies, or reagents	81
E154 Maintain activity issue, back order, or issue turn-in lists	81
C95 Write EPRs	81
E136 Complete purchase request forms, other than for equipment	81
U896 Coverslip tissues	81
V923 Perform special stains to identify pigments and minerals	81
U903 Label tissues or slides	81
W929 Disinfect autopsy areas	81
F216 Mix stains	81
A5 determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	81
W937 Prepare bodies for release	81
W932 Label and store autopsy specimens	81
E184 Turn in equipment, tools, or supplies	75
U907 Perform routine staining procedures	75
V914 Perform QC on special stains	75
V918 perform special stains to identify connective tissues	75
T887 Perform specimen accessioning procedures	75
V921 Perform special stains to identify mucopolysaccharides	75
V923 Perform special stains to identify pigments and minerals	75
V920 Perform special stains to identify infectious agents	69
U911 Section tissues	69

TABLE 19

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 4T052 AND DAFSC 4T072 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	4T051 (N=48)	4T071 (N=16)	DIFFERENCE
T894 Replace tissue processor reagents, such as alcohol or xylene	91	56	35
T893 Process tissues	91	62 ^c	29
U898 Embed tissues	95	68	27
V918 Perform special stains to identify connective tissues	95	75	20
U907 Perform routine staining procedures	91	75	16
U901 File tissues, blocks, or slides	91 ^a	75	16
E132 Annotate shopping guides	0	81	-81
E133 Brief supervisors concerning purchases or equipment, supplies, or reagents	0	81	-81
E154 Maintain activity issue, back order, or issue turn-in lists	0	81	-81
C95 Write EPRs	0	81	-81
E136 Complete purchase request forms, other than for equipment	0	81	-81
C67 Conduct performance feedback worksheet (PFW) evaluation sessions	0	63	-63

Training Analysis

Occupational survey data are sources of information which can be used to assist in the development of relevant training programs for entry-level personnel. Factors used to evaluate entry-level Medical Laboratory and Histopathology training include jobs being performed by first-enlistment personnel, overall distribution of first-enlistment personnel across career ladder jobs, percent first-job (1-24 month TAFMS) and first-enlistment (1-48 months TAFMS) members spend performing specific tasks or using specific equipment items, ratings of how much TE tasks should receive in formal training, and ratings of relative TD.

First-Enlistment Personnel

AFSC 4T0X1

In this study, there are 424 4T0X1 members in their first enlistment (1-48 TAFMS), representing 36 percent of the survey sample. Figure 2 shows the distribution of these members in the clusters and jobs identified in the survey analysis. Those jobs not shown in Table 3, Immunology, Research, Superintendent, Instructor, Systems Computer, and Environmental Chemistry, had less than 1 percent in the 1-48 months TAFMS group. As displayed in Table 20, these first-enlistment personnel spend 55 percent of their duty time in three duty areas, general laboratory (26 percent), clinical chemistry (17 percent), and bacteriology (12 percent). Table 21 displays representative tasks performed by first-enlistment personnel. Examples include: drawing blood samples from both inpatients and outpatients, cleaning laboratory facilities, and storing biological specimens.

TABLE 20

**RELATIVE PERCENT OF TIME SPENT ACROSS DUTIES BY
FIRST-ENLISTMENT AFSC 4T0X1 PERSONNEL**

DUTIES	PERCENT TIME SPENT
A ORGANIZING AND PLANNING	1
B DIRECTING AND IMPLEMENTING	1
C INSPECTING AND EVALUATING	*
D TRAINING	1
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	6
F PERFORMING GENERAL LABORATORY ACTIVITIES	26
G PERFORMING LABORATORY COMPUTER ACTIVITIES	2
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	1
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	17
J PERFORMING SPECIAL CHEMISTRY TESTS	1
K PERFORMING SEROLOGY PROCEDURES	2
L PERFORMING BLOOD BANKING PROCEDURES	7
M PERFORMING HEMATOLOGICAL PROCEDURES	8
N PERFORMING COAGULATION PROCEDURES	2
O PERFORMING BACTERIOLOGICAL PROCEDURES	12
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	1
Q PERFORMING PARASITOLOGICAL PROCEDURES	2
R PERFORMING URINE TESTING PROCEDURES	6
S PERFORMING DRUG TESTING PROCEDURES	1
T PERFORMING SURGICAL GROSS PROCEDURES	*
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	*
V PERFORMING SPECIAL STAINING PROCEDURES	*
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	*
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	2

* Denotes less than 1 percent

NOTE: Time Spent does not total 100 percent due to rounding

TABLE 21

**REPRESENTATIVE TASKS PERFORMED BY
FIRST-ENLISTMENT 4T0X1 PERSONNEL**

TASKS		PERCENT MEMBERS PERFORMING (N=424)
F207	Draw blood samples from outpatients	89
F206	Draw blood samples from inpatients	88
F201	Clean laboratory facilities or work areas, other than gross rooms	73
F254	Store biological specimens	67
F205	Collect infant phenylketonuria (PKU) screen specimens	66
F200	Centrifuge biological specimens	63
F204	Collect capillary blood samples	63
F189	Batch specimens	62
F251	Run commercial assayed controls	61
F253	Run patient controls	58
E166	Notify medical professionals of test results or testing delays	57
F244	Prepare reagents or standards	57
F247	Remove or dispose of infectious waste materials	54
F213	Instruct patients on collections or submissions of biological specimens	54
R852	Perform urinalyses using reagent strips on automated readers	54

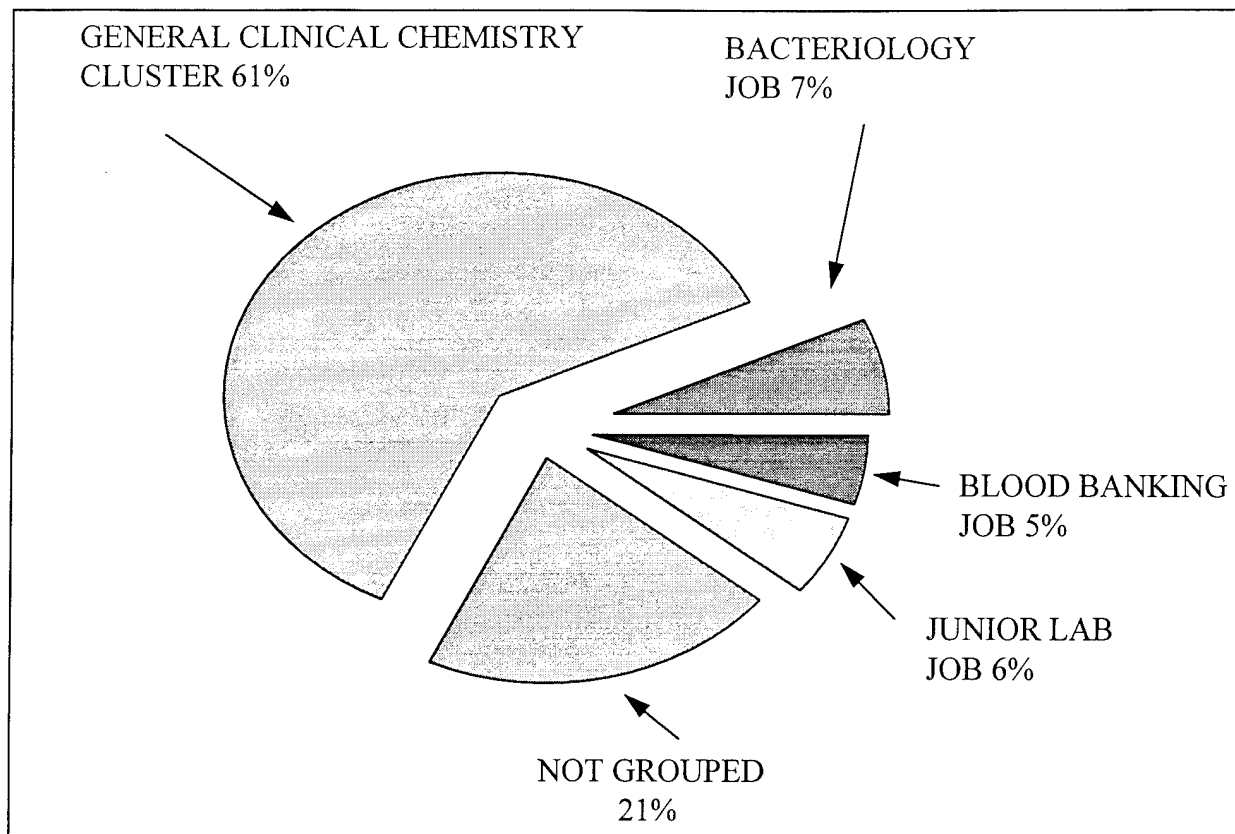


Figure 2. AFSC 4T0X1 members with 1-48 months total active federal military service (N=424) in clusters and jobs.

AFSC 4T0X2

The 27 members in the 1-48 months TAFMS for AFSC 4T0X2, Histopathology represent 38 percent of all surveyed AFSC 4T0X2 personnel. Table 22 shows these first-enlistment personnel spend approximately 59 percent of their time performing tasks in duties T through W, the Histopathological duty areas. Representative tasks performed by first-enlistment AFSC 4T0X2 personnel are displayed in Table 23. Examples of these tasks are performing special stains to identify; connective tissues, pigments and minerals, amyloids in tissues, and fats and lipids in tissues.

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary task factors that can help training development personnel decide which tasks to emphasize for entry-level training. These ratings, based on the judgments of senior career ladder NCOs at operational units, provide training personnel with a rank-ordering of those tasks considered important for airmen with 1-48 months TAFMS training (TE) and a measure of the relative difficulty of those tasks (TD). When combined with data on the

TABLE 22

**RELATIVE PERCENT OF TIME SPENT ACROSS DUTIES BY
FIRST-ENLISTMENT AFSC 4T0X2 PERSONNEL**

DUTIES	PERCENT TIME SPENT
A ORGANIZING AND PLANNING	2
B DIRECTING AND IMPLEMENTING	1
C INSPECTING AND EVALUATING	1
D TRAINING	*
E PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	7
F PERFORMING GENERAL LABORATORY ACTIVITIES	17
G PERFORMING LABORATORY COMPUTER ACTIVITIES	1
H PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	*
I PERFORMING CLINICAL CHEMISTRY PROCEDURES	1
J PERFORMING SPECIAL CHEMISTRY TESTS	
K PERFORMING SEROLOGY PROCEDURES	*
L PERFORMING BLOOD BANKING PROCEDURES	2
M PERFORMING HEMATOLOGICAL PROCEDURES	2
N PERFORMING COAGULATION PROCEDURES	*
O PERFORMING BACTERIOLOGICAL PROCEDURES	1
P PERFORMING MYCOLOGY AND VIROLOGY PROCEDURES	0
Q PERFORMING PARASITOLOGICAL PROCEDURES	*
R PERFORMING URINE TESTING PROCEDURES	1
S PERFORMING DRUG TESTING PROCEDURES	0
T PERFORMING SURGICAL GROSS PROCEDURES	17
U PERFORMING ROUTINE HISTOLOGICAL PROCEDURES	18
V PERFORMING SPECIAL STAINING PROCEDURES	12
W MAINTAINING MORGUES AND ASSISTING IN AUTOPSIES	12
X PERFORMING MEDICAL READINESS OR MOBILITY ACTIVITIES	4

* Denotes less than 1 percent

NOTE: Time Spent does not total 100 percent due to rounding

TABLE 23

**REPRESENTATIVE TASKS PERFORMED BY
FIRST-ENLISTMENT 4T0X2 PERSONNEL**

<u>TASKS</u>	PERCENT MEMBERS PERFORMING (N=27)
V918 Perform special stains to identify connective tissues	93
U907 Perform routine staining procedures	89
U898 Embed tissues	89
U896 Coverslip tissues	89
T893 Process tissues	89
U901 File tissues, blocks, or slides	89
T894 Replace tissue processor reagents, such as alcohol or xylene	89
V923 Perform special stains to identify pigments and minerals	89
V917 Perform special stains to identify amyloids in tissues	89
T883 Perform decalcification procedures	89
V919 Perform special stains to identify fats and lipids in tissues	89
U897 Distribute completed slides to pathologists	89
V914 Perform QC on special staining procedures	85
T884 Perform frozen sections	85
U911 Section tissues	78

percentages of first-enlistment personnel performing tasks, comparisons can be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors (TE and TD), accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for new personnel. These decisions must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist training development personnel, AFOMS developed a computer program that uses these task factors and the percentage of first-enlistment personnel performing tasks to produce Automated Training Indicators (ATI). ATIs correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 1, AETCR 52-22. ATIs allow training developers to quickly focus attention on those tasks which are most likely to qualify for resident course consideration.

AFSC 4T0X1

Tasks having the highest TE ratings for AFSC 4T0X1 personnel are listed in Table 24. Included for each task are the percentage of 1-24 months TAFMS performing the task, the percentage of 1-48 months TAFMS performing the task, and the TD rating. As illustrated in Table 24, tasks with the highest TE ratings deal with drawing blood from inpatients, performing antibody screens, performing ABO groupings, and performing major-side crossmatching compatibility tests. These tasks are performed by moderate to high percentages of 1-24 months and 1-48 months TAFMS personnel.

Table 25 lists the tasks having the highest TD ratings. The percentages of 1-24 months and 1-48 months TAFMS, 5- and 7-skill level personnel performing, and TE ratings are also included for each task. The three tasks with the highest TD ratings are technical functions dealing with computer programs used in medical laboratories, and they have low TE ratings. As shown in Table 25, the majority of tasks with high TD ratings have low percent members performing numbers. In fact, task M672, Perform differentials on body fluids, including CSF, is one of the few tasks that has above 30 percent members performing for first-enlistment personnel and has a high TD rating (6.09). This is an indication that these tasks may best be learned through OJT.

AFSC 4T0X2

Examples of tasks having the highest TE ratings for AFSC 4T0X2 personnel are listed in Table 26. Included for each task are the percentage of first-job and first-enlistment personnel and the TD rating. The majority of tasks listed deal with special staining of different tissues, embedding, sectioning, and coverslipping tissues. These tasks are performed by high percentages of first-job and first-enlistment personnel. Those tasks listed in Table 26 represent only a portion of AFSC 4T0X2 tasks with high TE ratings (above 2.78).

TABLE 24

EXAMPLES OF AFSC 4T0X1 TASKS WITH HIGHEST
TRAINING EMPHASIS RATINGS

	TRG EMP	PERCENT MEMBERS PERFORMING		TSK DIF
		1-24 MOS	1-48 MOS	
F206	6.74	91	88	4.27
L623	6.74	38	46	5.01
L620	6.72	38	47	4.10
L636	6.72	27	30	5.64
F207	6.67	91	89	3.81
L626	6.46	37	42	4.77
F204	6.43	64	63	4.16
L639	6.43	35	43	4.40
O770	6.41	42	47	4.83
M670	6.35	41	47	5.71
F205	6.33	65	66	4.61
M691	6.24	46	47	5.38
M690	6.24	46	47	5.25
L614	6.22	28	38	4.93
L627	6.17	17	18	5.52
R845	6.15	41	46	5.13
M671	6.15	34	37	5.86
F251	6.11	53	61	3.61
M672	6.09	30	32	6.14
L611	6.07	27	26	6.58
O784	6.04	43	46	4.55

TE MEAN = 2.35; S.D. = 1.80 (HIGH = 4.15)

TD MEAN = 5.00; S.D. = 1.00

TABLE 25

AFSC 4T0X1 TASKS WITH HIGHEST TASK DIFFICULTY RATINGS

TASKS	TSK DIF	PERCENT MEMBERS PERFORMING				TNG EMP
		1-24 MOS	1-48 MOS	5- LVL	7- LVL	
G260	7.45	6	7	9	9	.93
G282	7.44	7	13	17	21	1.48
G268	7.43	4	7	13	17	1.41
L613	7.09	16	17	23	13	5.17
X967	7.07	7	10	15	15	2.20
Q818	6.79	25	20	20	13	5.74
Identify parasites, other than pinworms, including helminths, arthropods, or protozoa						
L611	6.58	27	26	1	12	6.07
L628	6.31	16	15	13	7	4.11
O732	6.48	18	14	11	7	4.07
X956	6.27	7	8	12	15	2.78
O747	6.23	12	7	5	1	2.57
O735	6.17	17	15	15	12	3.61
M672	6.14	30	32	39	19	6.09
L630	6.11	11	14	16	6	3.91
O723	6.05	11	10	6	4	2.11
A5	6.02	7	10	31	64	1.72

TD MEAN = 5.00; S.D. = 1.00

TE MEAN = 2.35; S.D. = 1.80 (HIGH = 4.15)

TABLE 26

EXAMPLES OF AFSC 4T0X2 TASKS WITH HIGHEST
TRAINING EMPHASIS RATINGS

	TRG EMP	PERCENT MEMBERS PERFORMING		TSK DIF
		1-24 MOS	1-48 MOS	
U898	8.32	75	89	5.97
U911	7.68	38	78	6.01
U896	7.63	75	89	5.15
V921	7.58	75	78	7.41
W924	7.58	75	85	5.92
V917	7.53	63	89	7.41
U907	7.53	75	89	5.03
V914	7.53	75	85	5.37
T884	7.53	63	85	6.52
T893	7.37	63	89	5.84
V923	7.37	75	89	7.41
V918	6.24	75	93	7.41
V919	7.32	75	89	5.25
V920	7.32	63	67	7.41
W927	7.21	50	67	5.28
W925	7.16	75	85	4.67
U910	7.05	50	78	5.33
W936	7.05	75	85	6.15
W929	7.05	75	81	4.81
V922	6.95	75	78	7.53
T887	6.95	63	81	3.83

TE MEAN = 1.12; S.D. = 1.66 (HIGH = 2.78)

TD MEAN = 5.00; S.D. = 1.00

Table 27 lists examples of tasks having the highest TD ratings. The percentages of first-job, first-enlistment, 5- and 7-skill level personnel performing, and TE ratings are also included for each task. Most of the tasks with high TD ratings deal with tasks that were also rated high in TE. Examples of tasks with high TD ratings pertain to identifying special stains and identifying tissues microscopically and macroscopically. As with Table 26 above, those tasks listed in Table 27 are only a portion of those tasks with high TD ratings.

The majority of tasks with high TE or TD ratings for AFSC 4T0X2 members have high percent members performing. Most tasks with high TE ratings also have been rated high in TD.

Various lists of tasks, accompanied by TE and TD ratings, are contained in the TRAINING EXTRACT package and should be reviewed in detail by technical school personnel. For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the SURVEY METHODOLOGY section of this report.

Specialty Training Standard (STS) Analysis

A comprehensive review of STS 4T0X1 was made by comparing survey data to STS elements. Technical school personnel from the 382d Training Squadron, Sheppard AFB TX matched JI tasks to appropriate STS sections and subsections. A complete computer listing displaying the percent members performing tasks, TE and TD ratings for each task, along with the STS matching, has been forwarded to the technical school for their further review of training documents. STS elements with performance objectives were reviewed for TE, TD, and percent members performing information, as stipulated in AETCR 52-22, dated 17 February 1989. STS paragraphs containing general knowledge information, subject-matter knowledge requirements, or supervisory responsibilities were not reviewed. Typically, STS elements matched to tasks which have sufficiently high TE and TD ratings, and are performed by at least 20 percent of personnel in appropriate experience of skill-level groups (such as first-enlistment (1-48) months TAFMS, and 5- and 7-skill level groups) should be considered for inclusion in the STS. Likewise, elements matched to tasks with less than 20 percent performing in all of these groups should be considered for deletion from the STS.

AFSC 4T0X1

STS paragraphs containing performance information were reviewed. Of the 120 performance coded elements in the STS, 16 were found to be unsupported by occupational survey data. Nine of these elements, 13d(3), 13d(11), 13d(13), 13e(1), 13e(3), 13e(4), 15f(21), 17c(3), and 17c(5) are coded to the 3-skill level Phase II course. The remaining seven elements, 13c(4), 13d(10), 14b(5), 15f(20), 17b, 17f(1) and 17f(2) have proficiency codes in the 3-skill

TABLE 27

AFSC 4T0X2 TASKS WITH HIGHEST TASK DIFFICULTY RATINGS

TASKS	TSK DIF	PERCENT MEMBERS PERFORMING				TNG EMP
		1-24 MOS	1-48 MOS	5- LVL	7- LVL	
V912	Identify tissues microscopically	63	89	88	69	6.58
V913	Perform immunohistochemistry procedures	25	37	46	50	6.68
V922	Perform special stains to identify nerve tissues	75	78	71	56	6.95
V916	Perform special stains on frozen sections	38	52	52	50	6.16
V923	Perform special stains to identify pigments and minerals	75	89	90	75	7.37
V917	Perform special stains to identify amyloids in tissues	63	89	92	63	7.53
V921	Perform special stains to identify mucopolysaccharides	75	78	77	75	7.58
V920	Perform special stains to identify infectious agents	63	67	79	69	7.32
V919	Perform special stains to identify fats and lipids in tissues	75	89	85	56	7.32
V918	Perform special stains to identify connective tissues	75	93	96	75	7.37
U902	Identify tissues macroscopically	75	85	77	75	6.58
W934	Perform autopsy gross procedures	63	67	77	63	6.89
V915	Perform special stains on cytological specimens	63	59	52	50	5.47
T884	Perform frozen sections	63	85	85	81	7.53
U899	Evaluate histopathological procedures	50	74	73	69	6.05
W936	Prepare bodies for postmortem examinations	75	85	79	75	7.05
T891	Prepare muscle biopsies	50	48	31	38	5.42

TD MEAN = 5.00; S.D. = 1.00

TE MEAN = 1.12; S.D. = 1.66 (HIGH = 2.78)

level Phase I course column of the STS. Examples of these unsupported elements can be found in Table 28. Training personnel and SMEs should review these areas to determine if they should remain in future revisions to the STS.

Tasks not matched to any element of the STS are listed at the end of the STS computer listing. These were reviewed to determine if there were any tasks concentrated around any particular functions or jobs. Examples of technical tasks performed by at least 20 percent of STS target group respondents, but which are not referenced to any STS element, are displayed in Table 29. While some of these tasks are high in TE and average in TD, percent members performing figures indicate training personnel and SMEs should review these and other unreferenced tasks to determine STS inclusion.

Plan of Instruction (POI) Analysis

JI tasks were matched to related training objectives in POI J3AQR4T031-000, dated 22 June 1994, with assistance from 382 Training Squadron SMEs. The method employed was similar to that of the STS analysis. The data examined included percent members performing data for first-job (1-24 months TAFMS) personnel, first-enlistment (1-48 months TAFMS) personnel, and TE and TD ratings.

POI blocks, units of instruction, and learning objectives were compared to the standard set forth in AETCR 52-22, dated 17 February 1989 (30 percent or more of the first-enlistment group performing tasks trained, along with sufficiently high TE and TD ratings on those tasks). By this guidance, tasks trained in the course which do not meet these criteria should be considered for elimination from the formal course, if not justified on some other acceptable basis.

Entry-level personnel from both AFSC 4T0X1 and 4T0X2 attend this Phase I Course. Of the 112 proficiency coded learning objectives in the POI, 23 were unsupported by survey data from either AFSC. A separate computer product was used to evaluate each AFSC and the findings were then compared. Examples of those unsupported POI items are shown in Table 30. Training personnel should review the training extract and determine if these learning objectives warrant exclusion from this POI.

Table 31 lists examples of performance coded objectives for Phase II Course J5AZO92450 that are not supported by the survey sample. A complete listing of those unsupported learning objectives can be found in Annex C. Training personnel should review both Annex C and the Training Extract to see if these learning objectives should remain in this POI.

Some technical tasks performed by over 30 percent of first-enlistment personnel were not matched to the POI. Examples of these tasks with survey data are listed in Table 32. In addition to members performing these functions, some of these tasks are rated high in TE or TD. Training personnel and SMEs should review these and other unreferenced tasks to determine if training should be provided in the formal course.

TABLE 28

EXAMPLES OF AFSC 4T0X1 STS ELEMENTS NOT SUPPORTED
BY OSR DATA

STS REFERENCE/TASK	3 LVL COURSE PROF CODE PHASE I	3 LVL COURSE PROF CODE PHASE II	TRG EMP	1ST JOB (N=186)	1ST ENL (N=424)	TSK DIF
13c(4) Antibody titers	2b	3c		18	13	5.87
L624 Perform antibody titers	b	3c	4.41			
13d(4) Rho immune globulin eligibility				12	15	4.91
L641 Perform immune globulin eligibility testing	2b	3c	4.76			
14b(5) RBC indices				5	3	4.09
M661 Calculate erythrocyte indices using handheld wheels			2.61			
M633 Calculate erythrocyte indices using mathematical formulas			3.57	16	12	4.31
M662 Calculate erythrocyte indices using indices calculator			3.41	9	8	3.72
15f(22) Therapeutic drug monitoring	a	2b				
I454 Perform TDM screens using enzyme immunoassay (EIA)			4.22	14	16	4.52
I455 Perform TDM screens using fluorescent immunoassay (FIA)			3.02	6	7	4.41
I453 Perform therapeutic drug monitoring (TDM) screens using colorimetrics			1.63	8	6	4.94
I456 Perform TDM screens using radio immunoassay (RIA)			1.57	3	2	5.31

* Training Emphasis has an average 2.35 and a Standard Deviation of 1.80 (High TE = 4.15)

** Average Task difficulty is 5.00, and Standard Deviation is 1.00

TABLE 29

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE 4T0X1
GROUP MEMBERS AND NOT REFERENCED TO THE STS
(PERCENT MEMBERS PERFORMING)

TASKS	1ST ENL (N=424)	DAFSC 3C052 (N=605)	DAFSC 3C072 (N=26,872)	TNG EMP*	TASK DIF**
F204 Collect capillary blood samples	63	62	39	6.43	4.16
F205 Collect infant phenylketonuria (PKU) screen specimens	66	65	35	6.33	4.61
F200 Centrifuge biological specimens	63	62	46	4.33	2.10
F250 Review laboratory request slips	53	60	52	4.28	4.33

* Training emphasis has an average of 2.35 and a Standard Deviation of 1.80 (High TE = 4.15)

** Average Task difficulty is 5.00, and the Standard Deviation is 1.00

TABLE 30

EXAMPLES OF J4AQR4T031-000 COURSE OBJECTIVES
THAT DO NOT MEET 30 PERCENT CRITERIA
COMMON TO BOTH 4T0X1 AND 4T0X2 AFSCs

POIREFERENCE/TASKS	PERCENT MEMBERS PERFORMING			
	AFSC 1ST JOB (N=186)	4T0X1 1ST ENL (N=424)	AFSC 1ST JOB (N=8)	4T0X2 1ST ENL (N=27)
I4b Solve metric problems with a minimum of 70% accuracy F223 Perform metric to US or US to metric conversions	4	3	13	15
I9a Using the procedure, supplies, and equipment, perform serum total protein analyses with 3 of 4 specimens within + or - SD of the mean value				
I389 Perform glucose tests manually using enzymes	2	2	0	4
I13b Using the procedure, specimens, reagents, and equipment, perform creatinine analyses with 3 of 4 specimens within + or - 3 SD of the mean value				
I376 Perform creatinine tests manually	2	2	0	0
I18a Using the procedure, specimens, reagents, and equipment, perform 3 of 4 calcium analyses within + or - 3 SD of the mean value				
I356 Perform calcium tests manually	2	2	0	0
III5c Using the procedure, specimens, reagents, and equipment, identify an unknown antibody with no more than 4 instructor assists				
L611 Identify antibodies using commercial cell panels	27	26	25	7
III9a Using manufacturer's instructions, equipment and reagents, prepare media usable for culturing bacteria				
O797 Prepare media	4	3	0	0

TABLE 31

EXAMPLES OF J5AZ092450 PHASE II COURSE OBJECTIVES
WITH 30 PERCENT OR LESS MEMBERS PERFORMING

POINT REFERENCE/TASKS	TNG		IST		TSK DIFF
	EMP	JOB (N=186)	FNL (N=424)		
Ixb1 (25 Specimens) Perform serological tests for syphilis and the applicable quality control products without assistance					
K591 Perform syphilis screens	5.46	24	28		4.17
K592 Perform syphilis titers	4.11	13	15		4.88
Ixb6 (20 Specimens) Perform procedures for pregnancy testing and the applicable quality control procedures without assistance					
J467 Perform chronic gonadotropin human beta subunit (HCG-B) screens	4.30	10	10		3.94
J511 Perform quantitative HCG-B tests	3.93	16	20		4.97
Ixc31 Perform component inventories and resupply procedures (5)					
L604 Complete blood products shipping inventory forms	3.96	17	21		4.43
Ixb5 Correctly perform concentration procedures for the isolation of medically important parasites found in biological specimens without instructor assistance					
Q821 Perform concentration procedures	5.17	18	17		5.54

TABLE 32

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE 4T0X1
FIRST-ENLISTMENT PERSONNEL AND NOT REFERENCED TO THE PHASE II POI

	TRG EMP*	1ST ENL PERCENT MEMBERS PERFORMING (N=424)	TSK DIF**
F205 Collect infant phenylketonuria (PKU) screen specimens	6.33	66	4.61
I355 Perform BUN tests using chemical analyzers	5.91	55	3.85
F247 Remove or dispose of infectious waste materials	5.02	54	3.40
I351 Perform bilirubin tests using chemical analyzers	5.65	53	3.99
I349 Perform AST tests using chemical analyzers	5.76	50	3.85
I342 Perform alkaline phosphatase tests using chemical analyzers	5.52	50	3.90

* Training Emphasis has an average of 2.35 and a Standard Deviation of 1.80 (High TE = 4.15)

** Average Task Difficulty rating is 5.00, and the Standard Deviation is 1.00

AFSC 4T0X2

STS

A similar comparison of tasks matched to performance elements was made to the AFSC 4T0X2 STS. This STS is well supported by survey data. Of the 63 performance coded elements, only two were unsupported, element 15e, Metric Systems, and element 16e, Cytology Specimens. Training personnel and SMEs should review these two elements to determine if they warrant remaining in the STS.

POI

As with the AFSC 4T0X2 STS, the POI for course J5ABD92451 is well supported by survey data. Four proficiency coded items out of a total 36 were found to be unsupported. Of these four items, 15a and 17b deal with publications, forms and catalogs; item VI 1b pertains to compiling workload data; and item VI 5a covers pH meter operation. Training personnel and SME should review these POI items for continued use in the POI.

Table 33 displays examples of tasks not referenced to POI J5ABD92451. Some of these tasks are rated high in TE and TD, as well as having high percent members performing. For example, task V917, perform special stains to identify amyloids in tissues, has a TE rating of 7.53 (one SD above the mean is 2.78), with 85 percent of survey sample of AFSC 4T0X2 personnel performing. SMEs and training personnel should review these tasks and others rated high in TE, TD, and percent members performing for possible inclusion in the POI.

Job Satisfaction Analysis

An examination of job satisfaction indicators can give career ladder managers a better understanding of factors that may affect the job performance of career ladder airmen. Therefore, the survey booklet included attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions. The responses of the current survey sample were analyzed by making several comparisons: (1) among TAFMS groups of the AFSC 4T0X1/X2 career ladders and a comparative sample of personnel from other Medical career ladders survey in 1994 (AFSCs 4C0X1, 4D0X1, 4MOX1, 4N1X1/B/C/D, 4U0X1, 4V0X1/A, 4Y0X1, and 4Y0X2, between current and previous survey TAFMS groups, and (3) across specialty groups identified in the SPECIALTY JOBS section of the report.

TABLE 33

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE 4T0X2
FIRST-ENLISTMENT PERSONNEL AND NOT REFERENCED TO THE PHASE II POI

	TNG EMP*	1ST ENL PERCENT MEMBERS PERFORMING (N=27)	TSK DIF**
V917 Perform special stains to identify amyloids in tissues	7.53	89	7.41
V919 Perform special stains to identify fats and lipids in tissues	7.32	89	6.95
U910 Reprocess unacceptable samples	7.05	78	5.33
W937 Prepare bodies for release	6.53	85	5.96
V915 Perform special stains on cytological specimens	5.47	59	6.69
T891 Prepare muscle biopsies	5.42	48	6.14

* Training Emphasis has an average of 1.12 and a Standard Deviation of 1.66 (High TE = 2.88)

** Average Task Difficulty rating is 5.00, and the Standard Deviation is 1.00

AFSC 4T0X1

Table 34 compares first-enlistment (1-48 months TAFMS), second-enlistment (49-96 months TAFMS), and career (97+ months TAFMS) group data to corresponding enlistment groups from other Medical Groups surveyed in 1994. These data give a relative measure of how the job satisfaction of AFSC 4T0X1 personnel compares with similar Air Force specialties. Medical Laboratory personnel reported generally higher job satisfaction than members of the comparative sample. The first-enlistment, second-enlistment and career groups rated their job interest, perceived use of talents and training higher than their counterparts in this category. While sense of accomplishment from job ratings are higher than the comparative sample for the three groups, reenlistment intentions for first-enlistment personnel is lower. With the exception of reenlistment intentions, the percentages of positive responses in these comparisons reflect a career ladder where personnel appear to be satisfied with their jobs.

An indication of changes in job satisfaction perceptions within the career ladder is provided in Table 35, which presents TAFMS group data for 1995 survey respondents, and data from respondents in the last OSR of the career ladder in 1988 (924X0). Generally, perceptions of job interest have increased for all three TAFMS groups. Job interest, perceived use of talents and training have increased for all three groups. Data from respondents indicates that reenlistment intentions have increased for the 49-96 months group, but have decreased for both the 1-48 months and 97+ months groups.

In addition, job satisfaction data for identified job groups and clusters are provided at Table 36. Members across all identified clusters and jobs provided generally positive job satisfaction responses, with the Research Job and Instructor Job indicating full satisfaction (100 percent responding to the interesting response). When looking at perceived use of talents and training, results are very positive. Only the Systems Computer Job members indicate a somewhat low figure for perceived use of training. Little training, if any, is provided for personnel outside of the Communications-Computers Systems Programmers AFSC for maintaining specific computer systems. Reenlistment intentions for most groups is average to high, with both the Research and Environmental Chemistry Jobs indicating all members will reenlist.

AFSC 4T0X2

Only a comparison to a comparative sample could be accomplished for AFSC 4T0X2 Histopathological career ladder because the AFSC has not been surveyed before by AFOMS. The same AFSCs listed above for AFSC 4T0X1, Medical Laboratory, were used to compare job satisfaction indicators to the Histopathological AFSC. As can be seen in Table 37, job interest, perceived use of talents and training is high for all three TAFMS groups, with the 1-48 month personnel just slightly lower than the comparative sample. Sense of accomplishment for all three

TABLE 34

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 4T0X1 TAFMS GROUPS IN
CURRENT STUDY TO A COMPARATIVE SAMPLE (PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	4T0X1 (N=424)	COMP SAMPLE (N=1384)	4T0X1 (N=311)	COMP SAMPLE (N=1039)	4T0X1 (N=411)	COMP SAMPLE (N=1953)
<u>EXPRESSED JOB INTEREST</u>						
INTERESTING	85	72	87	72	83	78
SO-SO	10	16	12	16	12	13
DULL	5	12	3	12	5	9
<u>PERCEIVED USE OF TALENTS</u>						
FAIRLY WELL TO PERFECT	88	82	92	81	91	84
NONE TO VERY LITTLE	13	21	7	18	10	16
DID NOT RESPOND	0	0	1	1	0	0
<u>PERCEIVED USE OF TRAINING</u>						
FAIRLY WELL TO PERFECT	91	91	90	88	86	81
NONE TO VERY LITTLE	9	9	10	12	14	14
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>						
SATISFIED	81	71	81	72	77	74
NEUTRAL	9	14	9	11	8	9
DISSATISFIED	10	15	10	16	14	17
DID NOT RESPOND	0	0	0	1	0	0
<u>REENLISTMENT INTENTIONS</u>						
YES OR PROBABLY YES	51	57	67	67	72	74
NO OR PROBABLY NO	49	42	32	32	8	8
WILL RETIRE	0	01	1	0	20	18
DID NOT RESPOND	0	0	0	1	0	0

NOTE: Comparative data are from the following Medical AFSCs surveyed in 1994: 4C0X1, 4D0X1, 4M0X1, 4N1X1/B/C/D, 4U0X1, 4V0X1/A, 4Y0X1, and 4Y0X2

TABLE 35

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 4T0X1 TAFMS GROUPS IN
CURRENT STUDY TO 1989 AFSC 924X0 STUDY (PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	1995 (N=424)	1989 (N=349)	1995 (N=311)	1988 (N=429)	1995 (N=411)	1988 (N=408)
<u>EXPRESSED JOB INTEREST</u>						
INTERESTING	85	82	87	76	83	76
SO-SO	10	11	12	15	12	15
DULL	5	7	2	9	5	9
<u>PERCEIVED USE OF TALENTS</u>						
FAIRLY WELL TO EXCELLENT	88	83	93	83	91	81
NONE TO VERY LITTLE	12	17	7	17	9	19
<u>PERCEIVED USE OF TRAINING</u>						
FAIRLY WELL TO PERFECT	91	87	90	86	86	80
NONE TO VERY LITTLE	9	13	10	14	14	20
<u>REENLISTMENT INTENTIONS</u>						
YES OR PROBABLY YES	51	65	67	60	72	77
NO OR PROBABLY NO	49	35	32	40	8	23
WILL RETIRE	0	0	1	0	20	0

TABLE 36

COMPARISON OF JOB SATISFACTION INDICATORS FOR
IDENTIFIED JOB GROUPS AND CLUSTERS (PERCENT MEMBERS RESPONDING)

	GENERAL CLINICAL CHEMISTRY CLUSTER (N=654)	BACTER- IOLOGY JOB (N=63)	BLOOD BANKING JOB (N=148)	JUNIOR LAB JOB (N=37)
<u>EXPRESSED JOB INTEREST</u>				
INTERESTING	85	94	84	73
SO-SO	10	6	13	24
DULL	5	0	3	3
<u>PERCEIVED USE OF TALENTS</u>				
FAIRLY WELL TO PERFECT	91	97	88	82
NONE TO VERY LITTLE	9	3	12	18
<u>PERCEIVED USE OF TRAINING</u>				
FAIRLY WELL TO PERFECT	94	98	95	73
NONE TO VERY LITTLE	6	2	5	27
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>				
SATISFIED	80	90	71	81
NEUTRAL	9	6	16	8
DISSATISFIED	11	3	13	11
DID NOT RESPOND	0	1	0	0
<u>REENLISTMENT INTENTIONS</u>				
YES OR PROBABLY YES	61	67	69	70
NO OR PROBABLY NO	34	30	29	30
WILL RETIRE	5	3	2	0

TABLE 36 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR
IDENTIFIED JOB GROUPS AND CLUSTERS (PERCENT MEMBERS RESPONDING)

	IMMUN- OLOGY JOB (N=6)	RESEARCH JOB (N=5)	SUPERIN- TENDENT CLUSTER (N=126)	INSTRUCTOR JOB (N=23)
<u>EXPRESSED JOB INTEREST</u>				
INTERESTING	83	100	86	100
SO-SO	0	0	10	0
DULL	17	0	4	0
DID NOT RESPOND	0	0	0	0
<u>PERCEIVED USE OF TALENTS</u>				
FAIRLY WELL TO PERFECT	67	100	90	100
NONE TO VERY LITTLE	17	0	10	0
DID NOT RESPOND	16	0	0	0
<u>PERCEIVED USE OF TRAINING</u>				
FAIRLY WELL TO PERFECT	83	80	86	100
NONE TO VERY LITTLE	17	20	14	0
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>				
SATISFIED	83	100	81	87
NEUTRAL	0	0	7	0
DISSATISFIED	17	0	12	13
<u>REENLISTMENT INTENTIONS</u>				
YES OR PROBABLY YES	67	100	59	83
NO OR PROBABLY NO	16	0	9	4
WILL RETIRE	17	0	32	13

TABLE 36 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS FOR
IDENTIFIED JOB GROUPS AND CLUSTERS (PERCENT MEMBERS RESPONDING)

	SYSTEMS COMPUTER JOB (N=6)	HISTOPATH- OLOGY CLUSTER (N=68)	ENVRNMNTL CHEMISTRY JOB (N=9)
<u>EXPRESSED JOB INTEREST</u>			
INTERESTING	67	76	67
SO-SO	33	21	11
DULL	0	3	22
<u>PERCEIVED USE OF TALENTS</u>			
FAIRLY WELL TO PERFECT	83	84	100
NONE TO VERY LITTLE	17	15	0
DID NOT RESPOND	0	1	0
<u>PERCEIVED USE OF TRAINING</u>			
FAIRLY WELL TO PERFECT	50	91	98
NONE TO VERY LITTLE	50	9	0
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>			
SATISFIED	67	86	67
NEUTRAL	16	10	0
DISSATISFIED	17	4	33
<u>REENLISTMENT INTENTIONS</u>			
YES OR PROBABLY YES	67	62	100
NO OR PROBABLY NO	0	32	0
WILL RETIRE	33	6	0

TABLE 37

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 4T0X2 TAFMS GROUPS IN
CURRENT STUDY TO A COMPARATIVE SAMPLE
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	4T0X2 (N=27)	COMP SAMPLE (N=1384)	4T0X2 (N=22)	COMP SAMPLE (N=1039)	4T0X2 (N=23)	COMP SAMPLE (N=1953)
<u>EXPRESSED JOB INTEREST</u>						
INTERESTING	70	72	77	72	87	78
SO-SO	30	16	14	16	13	13
DULL	0	12	9	12	0	9
DID NOT RESPOND	0		0	0	0	0
<u>PERCEIVED USE OF TALENTS</u>						
FAIRLY WELL TO PERFECT	85	79	87	81	87	84
NONE TO VERY LITTLE	11	21	13	18	13	16
DID NOT RESPOND	4	0	0	1	0	0
<u>PERCEIVED USE OF TRAINING</u>						
FAIRLY WELL TO PERFECT	100	91	95	88	78	86
NONE TO VERY LITTLE	0	9	5	12	22	14
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>						
SATISFIED	85	71	86	72	87	74
NEUTRAL	15	14	9	11	9	9
DISSATISFIED	0	15	5	16	4	17
DID NOT RESPOND	0	0	0	1	0	0
<u>REENLISTMENT INTENTIONS</u>						
YES OR PROBABLY YES	48	57	77	67	65	74
NO OR PROBABLY NO	52	42	23	32	13	8
WILL RETIRE	0	1	0	0	22	18
DID NOT RESPOND	0	0	0	1	0	0

NOTE: Comparative data are from the following Medical AFSCs surveyed in 1994: 4C0X1, 4D0X1, 4M0X1, 4N1X1/B/C/D, 4U0X1, 4V0X1/A, 4Y0X1, and 4Y0X2

groups is higher than the comparative sample, but reenlistment intentions for the 1-48 month group is lower, with only 48 percent indicating they will reenlist. Twenty-two percent of the 97+ months group indicate they will retire.

As with the Medical Laboratory personnel above, AFSC 4T0X2 personnel appear to be satisfied with their jobs as indicated by the percentages of positive responses.

IMPLICATIONS

As explained in the **INTRODUCTION**, this survey was conducted primarily to identify changes that have occurred in the AFSC 4T0X2 career ladder over the last 5 years. AFSC 4T0X2 had not been surveyed to date by AFOMS. Data compiled from this survey support the career structures of both AFSCs. Specialty Job Analysis indicates no big changes have occurred in AFSC 4T0X1 over the past 5 years. Furthermore, AFMAN 36-2108 *Specialty Descriptions* for the AFSC 4T0X1 and 4T0X2 career ladders accurately portray the clusters and jobs identified in this study.

Skill-level analysis revealed a normal career progression pattern for both AFSCs. Some technical functions are being performed at the 7-skill level in AFSC 4T0X2 but their job is mostly supervisory in nature.

STS and POI analysis revealed numerous elements not supported by survey data. Training managers and SMEs should review these documents and the Training Extract to determine if these elements warrant exclusion.

No serious job satisfaction problems appear to exist within the AFSC 4T0X1 or 4T0X2 career ladders. For the most part, respondents appear satisfied with their jobs. However, members in AFSC 4T0X2 1-48 months TAFMS indicate lower than normal reenlistment intentions.

APPENDIX A

**SELECTED REPRESENTATIVE TASKS PERFORMED BY
MEMBERS OF CAREER LADDER JOBS**

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TABLE A1
GENERAL CLINICAL CHEMISTRY CLUSTER
(STG045)

TASKS	PERCENT MEMBERS PERFORMING (N=654)
F207 Draw blood samples from outpatients	94
I355 Perform BUN tests using chemical analyzers	86
I351 Perform bilirubin tests using chemical analyzers	83
F251 Run commercial assayed controls	82
I377 Perform creatinine tests using chemical analyzers	86
I357 Perform calcium tests using chemical analyzers	82
I349 Perform AST tests using chemical analyzers	81
I342 Perform alkaline phosphatase tests using chemical analyzers	81
F201 Clean laboratory facilities or work areas, other than gross rooms	81
F206 Draw blood samples from inpatients	80
I371 Perform cholesterol tests using chemical analyzers	79
I359 Perform carbon dioxide (CO2) tests using chemical analyzers	79
R853 Perform urine reducing substances tests, such as clinitests	78
I444 Perform serum total protein tests using chemical analyzers	78
I338 Perform albumin tests using chemical analyzers	77
F189 Batch specimens	77
E166 Notify medical professionals of test results or testing delays	76
F249 Retrieve medical laboratory test results	75
F187 Aliquot samples	74
I373 Perform creatinine kinase (CK) tests using chemical analyzers	74
R843 Perform macroscopic examinations of urine for color and appearance	73
F254 Store biological specimens	73
I336 Perform alanine amino transferase (ALT) tests using chemical analyzers	73
F204 Collect capillary blood samples	73
R845 Perform microscopic urine sediment tests manually	73

TABLE A2
BACTERIOLOGY JOB
(STG174)

TASKS	PERCENT MEMBERS PERFORMING (N=63)
O737 Identify colony morphologies	100
O739 Identify gram positive bacteria to species level	100
O786 Perform primary cultures on urine	100
O785 Perform primary cultures on throats	100
O783 Perform primary cultures on genital specimens	100
O782 Perform primary cultures on fecal specimens	100
O787 Perform primary cultures on wounds	100
O784 Perform primary cultures on sputums	100
O790 Perform rapid biochemical spot tests, such as indole or catalase	98
O781 Perform primary cultures on eyes or ears	98
O780 Perform primary cultures on anaerobic specimens	98
O779 Perform primary cultures on aerobic specimens	96
O771 Perform groupings of streptococci	96
O769 Perform gonorrhea isolation tests	96
O770 Perform Gram stains	95
O738 Identify gram negative bacteria to species level	95
O758 Perform colony counts of bacteria using calibrated loops	93
O743 Maintain stocks of QC organisms	90
O775 Perform optochin taxo-P tests	90
O799 Record colony morphologies	88
O794 Perform subculture on aerobic specimens	88
O726 Examine stains using brightfield microscopy	88
O761 Perform disc diffusion susceptibility tests, such as Kirby-Bauer	85
O721 Examine biological specimens using brightfield microscopy	85
O764 Perform enteric pathogen screens, such as salmonella or vibrio	85

TABLE A3
BLOOD BANKING JOB
(STG142)

TASKS	PERCENT MEMBERS PERFORMING (N=59)	
L623	Perform antibody screens	100
L614	Issue blood or blood components	98
L633	Perform indirect Coombs screens	98
L620	Perform ABO groupings	95
L639	Perform Rh typing	95
L651	Record blood bank refrigerator temperatures	95
L626	Perform direct Coombs antiglobulin tests	91
L611	Identify antibodies using commercial cell panels	91
L657	Store blood or blood components	89
L628	Perform elution tests	89
L636	Perform major-side crossmatching compatibility tests	87
L603	Annotate blood or blood component transfusion forms	85
L655	Select packed cells	82
F206	Draw blood samples from inpatients	82
L616	Maintain blood inventories	80
L604	Complete blood products shipping inventory forms	80
L619	Perform ABO blood subgroupings	80
L624	Perform antibody titers	80
F201	Clean laboratory facilities or work areas, other than gross rooms	76
L601	Annotate antibody file forms	76
L654	Select fresh frozen plasma	74
F207	Draw blood samples from outpatients	74
L625	Perform blood group antigen tests, other than ABO or Rh	74
L613	Investigate transfusion reactions	74
L631	Perform fetal rosette screens	73

TABLE A4

JUNIOR LAB JOB
(STG109)

TASKS		PERCENT MEMBERS PERFORMING (N=37)
F207	Draw blood samples from outpatients	100
F249	Retrieve medical laboratory test results	95
F206	Draw blood from inpatients	92
F201	Clean laboratory facilities or work areas, other than gross rooms	84
F204	Collect capillary blood samples	84
F200	Centrifuge biological samples	78
F213	Instruct patients on collections or submissions of biological specimens	78
E166	Notify medical professionals of test results or testing delays	78
F250	Review laboratory request slips	76
E179	Research missing patient information from laboratory request slips	73
F254	Store biological specimens	73
F205	Collect infant phenylketonuria (PKU) screen specimens	73
F247	Remove or dispose of infectious waste materials	70
F187	Aliquot samples	68
E178	Record specimen collections	65
F211	Instruct health care providers on collections or submissions of biological specimens	65
F209	Inspect biological specimens for shipping	62
R838	Measure 24-hour urine volumes	59
G263	Enter or update computerized patient data	51
G275	Perform data base inquiries, such as requesting test results	51
E142	Deliver laboratory slips or reports to clinics or wards	51
F189	Batch specimens	49
F220	Perform bacterial disinfections	49

TABLE A5
IMMUNOLOGY JOB
(STG274)

TASKS		PERCENT MEMBERS PERFORMING (N=6)
F254	Store biological specimens	100
J498	Perform hepatitis C antibody tests	100
K591	Perform syphilis screens	100
F187	Aliquot samples	100
F228	Perform serial dilutions	100
J491	Perform hepatitis B core antibody tests, IgG	100
J492	Perform hepatitis B core antibody tests, IgM	100
F200	Centrifuge biological specimens	100
F251	Run commercial assayed controls	100
K592	Perform syphilis titers	100
F256	Store reagents or standards, other than hazardous chemicals	100
K559	Perform HIV tests	83
J496	Perform hepatitis Bs antigen tests	83
K525	Perform antinuclear antibody (ANA) screens	83
K527	Perform anti-DNA antibody titers	83
K528	Perform anti-DNA screens	83
K526	Perform ANA titers	83
J495	Perform hepatitis B antibody tests	83
K583	Perform rheumatoid arthritis screens	83
K587	Perform rubella screens	83
K548	Perform extractable nuclear antigen (ENA) profiles	83
K600	Perform Western-Blot tests	83
K546	Perform Epstein Barr screens	83
K590	Perform streptozyme screens	83
F189	Batch specimens	83

TABLE A6

RESEARCH JOB
(STG199)

TASKS	PERCENT MEMBERS PERFORMING (N=5)
H284 Collect and analyze research data	100
H290 Perform chemical analyses on biological samples	100
H287 Draw blood samples from laboratory animals	100
F255 Store hazardous chemicals, such as acids or carcinogens	100
F256 Store reagents or standards, other than hazardous chemicals	100
F254 Store biological specimens	100
F226 Perform operator or preventive maintenance on laboratory equipment	100
F200 Centrifuge biological specimens	100
F197 Calibrate pH meters	100
A019 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	100
C086 Evaluate suggestions	100
F201 Clean laboratory facilities or work areas, other than gross rooms	100
F220 Perform bacterial disinfections	100
F233 Perform sterilizations using steam autoclaves	100
F202 Clean laboratory glassware for spots, chemical residue, scratches, or cracks	100
F191 Calculate molar solutions	100
F193 Calculate normal solutions	100
C085 Evaluate safety or security programs	100
A005 Determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	100
F190 Calculate general formulas	100
F210 Inspect laboratory glassware for spots, chemical residue, scratches, or cracks	100
B040 Direct maintenance of facilities or work areas	100
H285 Collect or preserve cultures or samples from laboratory animals	80
H288 Perform care or handling of laboratory animals	80

TABLE A7
SUPERINTENDENT CLUSTER
(STG082)

TASKS	PERCENT MEMBERS PERFORMING (N=126)
A019 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	98
B037 Counsel personnel on personal or military-related matters	93
A003 Brief superiors on status of laboratory operations	92
A005 Determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies	90
A007 Determine or establish work priorities	89
C095 Write EPRs	88
A015 Establish performance standards for subordinates	87
C081 Evaluate personnel for compliance with performance standards	86
C067 Conduct performance feedback worksheet (PFW) evaluation sessions	85
A004 Coordinate laboratory activities with other agencies or organizations	84
A001 Assign personnel to duty positions	83
B050 Initiate actions required to correct substandard performance of personnel	83
B036 Conduct supervisory orientations of newly assigned personnel	83
C096 Write recommendations for awards or decorations	82
C090 Inspect personnel for compliance with military standards	80
B053 Interpret policies, directives, or procedures for subordinates	80
B055 Resolve technical problems for subordinates	79
A014 Establish laboratory policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	79
C082 Evaluate personnel for promotion, demotion, reclassification, or special awards	78
A024 Plan or schedule work assignments or priorities	76
A018 Establish work schedules	75
B061 Supervise Medical Laboratory Journeymen (AFSC 4T051)	74
C091 Investigate laboratory accidents or incidents	

TABLE A8

INSTRUCTOR JOB
(STG043)

TASKS	PERCENT MEMBERS PERFORMING (N=23)
D120 Evaluate progress of trainees	96
D122 Maintain training records, charts, graphs, aids, devices, or files	96
D114 Develop or prepare lesson plans	91
D108 Counsel trainees on training progress	91
D098 Administer or score training tests	91
B037 Counsel personnel on personal or military-related matters	87
B060 Supervise Medical Laboratory Apprentices (AFSC 4T031)	83
A019 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	83
D121 Evaluate training methods or techniques	78
D107 Construct or develop training materials or aids	78
D105 Conduct resident course classroom training	74
D130 Write test questions	70
D123 Monitor effectiveness of training programs	70
A018 Establish work schedules	70
D128 Procure training aids, space, or equipment	70
D127 Prepare student withdrawal or entry forms	70
C090 Inspect personnel for compliance with military standards	61
D116 Evaluate effectiveness of training programs	61
D124 Participate in continuing education classes, other than conducting	61
C081 Evaluate personnel for compliance with performance standards	57
B055 Resolve technical problems for subordinates	57
D100 Brief organizational personnel on training programs or matters	57
F187 Aliquot samples	52
B034 Conduct laboratory tours	52
D101 Conduct continuing technical education classes	48

TABLE A9
SYSTEMS COMPUTER JOB
(STG187)

TASKS	PERCENT MEMBERS PERFORMING (N=6)
G278 Perform system analyses on laboratory information systems	100
G276 Perform minor repairs of computer equipment	100
G282 Troubleshoot computer stops or malfunctions	100
G263 Enter or update computerized patient data	100
G269 Maintain access lists of personnel authorized use of on-line devices	100
G277 Perform preventive maintenance on computer hardware	100
G268 Isolate causes of computer stops or malfunctions	100
G260 Configure computers to interface with laboratory equipment	100
G281 Test new computer hardware or software products	100
G266 Fabricate computer cables	100
G275 Perform data base inquiries, such as requesting test results	83
G262 Distribute or deliver computer output products	83
G274 Modify existing software to meet local needs	83
G270 Maintain lists of authorized software	83
G261 Coordinate designs or modifications of computer programs with programmers	83
A019 Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting	83
F206 Draw blood samples from inpatients	83
F207 Draw blood samples from outpatients	83
B037 Counsel personnel on personal or military-related matters	83
G273 Maintain work order logs for computer systems	67
G283 Write laboratory computer programs	67
G267 Initiate or update computer directed instruction	67
G272 Maintain workload data using computers	67
A003 Brief superiors on status of laboratory operations	67
C081 Evaluate personnel for compliance with performance standards	67

TABLE A10
HISTOPATHOLOGY CLUSTER
(STG098)

TASKS	PERCENT MEMBERS PERFORMING (N=68)
U896 Coverslip tissues	99
U897 Distribute completed slides to pathologists	99
U898 Embed tissues	97
V918 Perform special stains to identify connective tissues	97
U907 Perform routine staining procedures	94
V914 Perform QC on special staining procedures	94
U901 File tissues, blocks, or slides	94
T883 Perform decalcification procedures	94
V923 Perform special stains to identify pigments and minerals	93
U903 Label tissues or slides	91
T893 Process tissues	91
T894 Replace tissue processor reagents, such as alcohol or xylene	91
U911 Section tissues	90
V917 Perform special stains to identify amyloids in tissues	90
V912 Identify tissues microscopically	90
U909 Repair slides	90
T887 Perform specimen accessioning procedures	88
T895 Store wet tissues	88
T879 Clean and disinfect gross rooms	88
W924 Assist pathologists in removal of body organs	88
W925 Clean and disinfect morgue instruments	88
W929 Disinfect autopsy areas	88
W932 Label and store autopsy specimens	88
T884 Perform frozen sections	87
V919 Perform special stains to identify fats and lipids in tissues	87

TABLE A11
ENVIRONMENTAL CHEMISTRY JOB
(STG044)

TASKS	PERCENT MEMBERS PERFORMING (N=9)
H295 Perform chemical analyses on water samples	90
H294 Perform chemical analyses on waste samples	90
H293 Perform chemical analyses on soil samples	78
F201 Clean laboratory facilities or work areas, other than gross rooms	78
H321 Prepare water samples for chemical analyses	67
H289 Perform chemical analyses on air samples	67
H292 Perform chemical analyses on industrial products	67
F193 Calculate percent solutions	67
H291 Perform chemical analyses on filters	67
F256 Store reagents or standards, other than hazardous chemicals	67
F255 Store hazardous chemicals, such as acids or carcinogens	67
F246 Remove or dispose of hazardous waste materials	67
H319 Prepare waste samples for chemical analyses	56
H296 Perform chromatography	56
F244 Prepare reagents or standards	56
X945 Don and doff chemical warfare protective equipment	56
F264 Enter or update computerized QC data	56
F210 Inspect laboratory glassware for spots, chemical residue, scratches, or cracks	56
A003 Brief superiors on status of laboratory operations	56
H317 Prepare soil samples for chemical analyses	44
F190 Calculate general chemical formulas	44
F197 Calibrate pH meters	44
F228 Perform serial dilutions	44
F192 Calculate normal solutions	44
F226 Perform operator or preventive maintenance on laboratory equipment	44

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APPENDIX B
LISTING OF MODULES AND TASK STATEMENTS

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These Task Modules (TMs) were developed in order to organize and summarize the extensive task information for this specialty. The TMs were developed by clustering tasks which are coperformed by the same incumbents. Coperformance is a measure of how probable a task will be performed with another task, based upon the responses of surveyed personnel. For example, if an individual performs one nuclear weapons safety task, the probability is very high that he or she will perform other nuclear weapons safety tasks. Thus, the group of nuclear weapons safety tasks can be considered a "natural group" of associated or related tasks (see TM 0013 below). The statistical clustering generally approximates these "natural groupings."

The title of each TM is a best estimate as to the generic subject content of the group of tasks. The TMs are useful for organizing the task data into meaningful units and as a way to concisely summarize the extensive job data. However, TMs are only one way to organize the information. Other strategies may also be valid.

0001	ST0410	General Medical Lab
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- | | | |
|----|-------|---|
| 1 | E0142 | Deliver laboratory slips or reports to clinics or wards |
| 2 | E0166 | Notify medical professionals of test results or testing delays |
| 3 | E0177 | Record patient test results on laboratory slips |
| 4 | E0178 | Record specimen collections |
| 5 | E0179 | Research missing patient information from laboratory request slips |
| 6 | F0187 | Aliquot samples |
| 7 | F0189 | Batch specimens |
| 8 | F0200 | Centrifuge biological specimens |
| 9 | F0201 | Clean laboratory facilities or work areas, other than gross rooms |
| 10 | F0204 | Collect capillary blood samples |
| 11 | F0205 | Collect infant phenylketonuria (PKU) screen specimens |
| 12 | F0206 | Draw blood samples from inpatients |
| 13 | F0207 | Draw blood samples from outpatients |
| 14 | F0213 | Instruct patients on collections or submissions of biological specimens |
| 15 | F0226 | Perform operator or preventive maintenance on laboratory equipment |
| 16 | F0244 | Prepare reagents or standards |
| 17 | F0246 | Remove or dispose of hazardous waste materials |
| 18 | F0247 | Remove or dispose of infectious waste materials |
| 19 | F0248 | Remove or dispose of Privacy Act material |
| 20 | F0249 | Retrieve medical laboratory test results |
| 21 | F0250 | Review laboratory request slips |
| 22 | F0251 | Run commercial assayed controls |
| 23 | F0253 | Run patient controls |
| 24 | F0254 | Store biological specimens |
| 25 | F0256 | Store reagents or standards, other than hazardous chemicals |
| 26 | F0258 | Validate test results |

0002	ST0483	Hematology
1	M0664	Estimate platelet counts using stained blood film
2	M0666	Perform blood cell differentials using automated classifiers
3	M0667	Perform blood cell differentials using hand cell counters
4	M0670	Perform cell counts on CSF
5	M0671	Perform cell counts on fluids, other than CSF
6	M0672	Perform differentials on body fluids, including CSF
7	M0674	Perform erythrocyte sedimentation rate (ESR) tests using Westergren procedures
8	M0679	Perform hematocrit tests using automated analyzers
9	M0680	Perform hemoglobin tests using hematology analyzers
10	M0686	Perform nasal eosinophil smear counts
11	M0690	Perform RBC morphologies
12	M0691	Perform reticulocyte counts
13	M0692	Perform sickle cell screens manually
14	M0693	Perform sperm counts
15	M0694	Perform sperm morphological analyses
16	M0695	Perform sperm motility tests
17	M0699	Stain blood smears using automatic stainers
18	N0702	Perform activated partial thromboplastin time (APTT) tests using coagulation analyzers
19	N0704	Perform bleeding time tests
20	N0715	Perform prothrombin time (PT) tests using coagulation analyzers
21	N0720	Record INRs
22	R0838	Measure 24-hour urine volumes
23	R0840	Perform bilirubin tests, such as Ictotests
24	R0842	Perform ketone tests, such as acetests
25	R0843	Perform macroscopic examinations of urine for color and appearance
26	R0845	Perform microscopic urine sediment tests manually
27	R0847	Perform qualitative HCG-B tests
28	R0849	Perform specific gravity tests using refractometers
29	R0850	Perform sulfosalicylic acids (SSAs) tests
30	R0852	Perform urinalyses using reagent strips on automated readers
31	R0853	Perform urine reducing substances tests, such as clinitests
0003	ST0509	Manual Hematology
1	M0668	Perform blood eosinophil counts
2	M0678	Perform hematocrit tests manually
3	M0687	Perform platelet counts using hemacytometers
4	M0689	Perform RBC counts using hemacytometers
5	M0697	Perform white blood cell counts using hemacytometers
0004	ST0702	Automated Clinical Chemistry
1	I0336	Perform alanine amino transferase (ALT) tests using chemical analyzers
2	I0338	Perform albumin tests using chemical analyzers
3	I0342	Perform alkaline phosphatase tests using chemical analyzers

0004	ST0702	Automated Clinical Chemistry (Continued)
4	I0346	Perform amylase tests using chemical analyzers, other than amylase isoenzyme tests
5	I0349	Perform AST tests using chemical analyzers
6	I0351	Perform bilirubin tests using chemical analyzers
7	I0355	Perform BUN tests using chemical analyzers
8	I0357	Perform calcium tests using chemical analyzers
9	I0359	Perform carbon dioxide (CO2) tests using chemical analyzers
10	I0363	Perform CSF total protein tests using chemical analyzers
11	I0368	Perform chloride tests using chemical analyzers
12	I0371	Perform cholesterol tests using chemical analyzers
13	I0373	Perform creatinine kinase (CK) tests using chemical analyzers
14	I0377	Perform creatinine tests using chemical analyzers
15	I0381	Perform ethanol tests using chemical analyzers
16	I0386	Perform GGTP tests using chemical analyzers
17	I0391	Perform glucose tests using enzymes with chemical analyzers
18	I0394	Perform high-density lipoprotein (HDL) cholesterol tests using chemical analyzers
19	I0406	Perform LDH tests using chemical analyzers
20	I0416	Perform magnesium tests using chemical analyzers
21	I0418	Perform medical blood alcohol tests using chemical analyzers
22	I0432	Perform phosphorus tests using chemical analyzers
23	I0444	Perform serum total protein tests using chemical analyzers
24	I0458	Perform triglyceride tests using chemical analyzers
25	I0459	Perform uric acid tests using chemical analyzers
0005	ST0564	Automated Clinical Chemistry using ISE
1	I0369	Perform chloride tests using ISE
2	I0436	Perform potassium tests using ISE
3	I0438	Perform quantitative CO2 tests using ISE
4	I0448	Perform sodium tests using ISE
0006	ST0246	Admin
1	E0141	Coordinate laboratory tests issues with requesters
2	E0143	Destroy outdated records or reports
3	E0152	Locate information on laboratory technical procedures
4	E0157	Maintain hard copy medical files, such as laboratory slips
5	E0164	Maintain workload data manually
6	E0180	Research special testing locations
7	G0272	Maintain workload data using computers
0007	ST0413	Shipping
1	E0139	Complete shipping documents, other than for customs
2	F0209	Inspect biological specimens for shipping
3	F0238	Prepare biological specimens for shipment using civilian shipping procedures

0007	ST0413	Shipping (Continued)
4	F0239	Prepare biological specimens for shipment using dedicated mail couriers
5	F0240	Prepare biological specimens for shipment using dry ice
6	F0242	Prepare biological specimens for shipment using wet ice
0008	ST0160	Clinical Chemistry
1	F0197	Calibrate pH meters
2	I0426	Perform pH tests manually
3	I0430	Perform pH tests using pH meters
0009	ST0913	Drug Testing
1	S0866	Perform instrumental analyses of amphetamines
2	S0867	Perform instrumental analyses of barbiturates
3	S0868	Perform instrumental analyses of cocaine
4	S0869	Perform instrumental analyses of opiates
5	S0870	Perform instrumental analyses of PCP
0010	ST0449	Bacteriology
1	O0721	Examine biological specimens using brightfield microscopy
2	O0725	Examine biological specimens using wet-mount microscopy
3	O0726	Examine stains using brightfield microscopy
4	O0736	Identify bacteria using microbiological analyzers
5	O0737	Identify colony morphologies
6	O0738	Identify gram negative bacteria to species level
7	O0739	Identify gram positive bacteria to species level
8	O0741	Isolate anaerobic bacteria
9	O0743	Maintain stocks of QC organisms
10	O0748	Perform bacitracin taxo-A tests
11	O0751	Perform blood cultures manually
12	O0752	Perform blood cultures using analyzers
13	O0758	Perform colony counts of bacteria using calibrated loops
14	O0764	Perform enteric pathogen screens, such as salmonella or vibrio
15	O0769	Perform gonorrhea isolation tests
16	O0770	Perform Gram stains
17	O0771	Perform groupings of streptococci
18	O0773	Perform minimum inhibitory concentration (MIC) susceptibility tests
19	O0775	Perform optochin taxo-P tests
20	O0779	Perform primary cultures on aerobic specimens
21	O0780	Perform primary cultures on anaerobic specimens
22	O0781	Perform primary cultures on eyes or ears
23	O0782	Perform primary cultures on fecal specimens
24	O0783	Perform primary cultures on genital specimens
25	O0784	Perform primary cultures on sputum's
26	O0785	Perform primary cultures on throats

0010	ST0449	Bacteriology (Continued)
27	O0786	Perform primary cultures on urine
28	O0787	Perform primary cultures on wounds
29	O0790	Perform rapid biochemical spot tests, such as indole or catalase
30	O0794	Perform subculture on aerobic specimens
31	O0796	Perform subculture on anaerobic specimens
32	O0799	Record colony morphologies
0011	ST0341	Medical Readiness
1	X0940	Control hemorrhage using digital pressure
2	X0941	Control hemorrhage using pressure dressings
3	X0942	Control hemorrhage using tourniquets
4	X0943	Count and record pulse rates
5	X0944	Count and record respiration rates
6	X0946	Initiate basic psychiatric care in emergency situations
7	X0947	Initiate treatment for closed wounds
8	X0948	Initiate treatment for first-degree burns
9	X0949	Initiate treatment for fractures
10	X0950	Initiate treatment for injuries from chemical agents
11	X0951	Initiate treatment for open wounds
12	X0952	Initiate treatment for patients in shock
13	X0953	Initiate treatment for patients with dizziness
14	X0954	Initiate treatment for second-degree burns
15	X0955	Initiate treatment for thermal injuries or heat disorders
16	X0956	Initiate treatment for third-degree burns
17	X0957	Irrigate wounds
18	X0958	Load or unload vehicles used in transporting patients
19	X0959	Maintain military sanitation conditions
20	X0960	Operate field communications systems
21	X0961	Pack standards or reagents
22	X0962	Pack wounds
23	X0964	Perform patient carries using hand-method
24	X0965	Perform patient carries using litter-method
25	X0966	Perform patient decontamination's
26	X0967	Perform triage
27	X0968	Set up or take down equipment or supplies in mobile laboratory facilities
28	X0970	Set up or tear down isoshelters
29	X0971	Set up or tear down tents
30	X0972	Take and record blood pressures
31	X0973	Transfer patients using motorized hoists
0012	ST0300	Blood Banking
1	F0217	Monitor alarm systems
2	L0601	Annotate antibody file forms
3	L0602	Annotate blood donor forms

0012	ST0300	Blood Banking (Continued)
4	L0603	Annotate blood or blood component transfusion forms
5	L0604	Complete blood products shipping inventory forms
6	L0611	Identify antibodies using commercial cell panels
7	L0612	Identify antibodies using enzymes
8	L0613	Investigate transfusion reactions
9	L0614	Issue blood or blood components
10	L0615	Maintain antibody files
11	L0616	Maintain blood inventories
12	L0619	Perform ABO blood subgroupings
13	L0620	Perform ABO groupings
14	L0622	Perform antibody absorption tests
15	L0623	Perform antibody screens
16	L0624	Perform antibody titers
17	L0625	Perform blood group antigen tests, other than ABO or Rh
18	L0626	Perform direct Coombs antiglobulin tests
19	L0628	Perform elution tests
20	L0630	Perform fetal maternal hemorrhage tests
21	L0631	Perform fetal rosette screens
22	L0633	Perform indirect Coombs screens
23	L0636	Perform major-side crossmatching compatibility tests
24	L0637	Perform autologous blood transfusion procedures
25	L0638	Perform Rh phenotyping
26	L0639	Perform Rh typing
27	L0641	Perform Rho immune globulin eligibility testing
28	L0642	Perform therapeutic phlebotomies
29	L0643	Pool blood components
30	L0650	Prepare washed RBCs
31	L0651	Record blood bank refrigerator temperatures
32	L0654	Select fresh frozen plasma
33	L0655	Select packed cells
34	L0656	Select platelets
35	L0657	Store blood or blood components
36	L0658	Thaw blood or blood components
0013	ST0291	Special Chemistry
1	J0480	Perform free thyroxine (T4) tests
2	J0481	Perform free triiodothyronine (T3) tests
3	J0511	Perform quantitative HCG-B tests
4	J0515	Perform thyroid stimulating hormone (TSH) tests
5	J0516	Perform thyroxine (T4) tests
6	J0518	Perform triiodothyronine (T3) tests

0014	ST0289	Supervision
1	A0001	Assign personnel to duty positions
2	A0002	Assign sponsors for newly assigned personnel
3	A0003	Brief superiors on status of laboratory operations
4	A0004	Coordinate laboratory activities with other agencies or organizations
5	A0005	Determine or establish logistics requirements, such as personnel, equipment, space, tools, or supplies
6	A0006	Determine or establish publications requirements
7	A0007	Determine or establish work priorities
8	A0008	Develop cost-reduction programs
9	A0010	Develop organizational or functional charts
10	A0011	Develop self-inspection program checklists
11	A0012	Draft budget requirements
12	A0014	Establish laboratory policies, such as operating instructions (OIs) or standard operating procedures (SOPs)
13	A0015	Establish performance standards for subordinates
14	A0016	Establish procedures for accountability of equipment, tools, or supplies
15	A0017	Establish work methods, controls, or performance standards
16	A0018	Establish work schedules
17	A0019	Participate in meetings such as staff meetings, briefings, conferences, or workshops, other than conducting
18	A0020	Plan equipment or facility maintenance requirements
19	A0021	Plan equipment replacement programs
20	A0023	Plan or prepare briefings
21	A0024	Plan or schedule work assignments or priorities
22	A0026	Plan quality control (QC) programs
23	A0027	Plan safety or security programs
24	A0028	Prepare agenda for meetings, such as staff meetings, conferences, or workshops
25	A0029	Review drafts of regulations, manuals, or other directives
26	A0030	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes
27	A0031	Write job or position descriptions
28	B0034	Conduct laboratory tours
29	B0035	Conduct staff meetings or briefings
30	B0036	Conduct supervisory orientations of newly assigned personnel
31	B0037	Counsel personnel on personal or military-related matters
32	B0038	Direct development or maintenance of status indicators, such as boards, graphs, or charts
33	B0039	Direct maintenance of administrative files
34	B0040	Direct maintenance of facilities or work areas
35	B0041	Draft recommendations for policy changes in logistics requirements, such as personnel, equipment, or supplies
36	B0042	Implement cost-reduction programs
37	B0045	Implement QC programs
38	B0046	Implement safety or security programs
39	B0047	Implement self-inspection programs
40	B0049	Implement work methods or inspection procedures
41	B0050	Initiate actions required to correct substandard performance of personnel

0014	ST0289	Supervision (Continued)
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42	B0053	Interpret policies, directives, or procedures for subordinates
43	B0055	Resolve technical problems for subordinates
44	B0061	Supervise Medical Laboratory Journeymen (AFSC 4T051)
45	C0065	Analyze workload requirements
46	C0067	Conduct performance feedback worksheet (PFW) evaluation sessions
47	C0068	Conduct self-inspections
48	C0070	Evaluate budget requirements
49	C0072	Evaluate inspection report findings
50	C0073	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) Program standards
51	C0074	Evaluate job or position descriptions
52	C0075	Evaluate laboratory accident or incident reports
53	C0076	Evaluate laboratory performance standards
54	C0078	Evaluate maintenance of equipment, tools, supplies, or workspace
55	C0080	Evaluate new equipment
56	C0081	Evaluate personnel for compliance with performance standards
57	C0082	Evaluate personnel for promotion, demotion, reclassification, or special awards
58	C0083	Evaluate procedures for storage, inventory, or inspection of property items
59	C0084	Evaluate logistics requirements, such as personnel, equipment, space, tools, or supplies
60	C0085	Evaluate safety or security programs
61	C0086	Evaluate suggestions
62	C0087	Evaluate work schedules
63	C0090	Inspect personnel for compliance with military standards
64	C0091	Investigate laboratory accidents or incidents
65	C0092	Perform safety inspections of laboratory facilities or equipment
66	C0093	Review preventive maintenance schedules
67	C0095	Write EPRs
68	C0096	Write recommendations for awards or decorations
69	C0097	Write replies to inspection reports
70	D0106	Conduct safety or security training

0015	ST0547	Parasitology
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1	Q0818	Identify parasites, other than pinworms, including helminths, arthropods, or protozoa
2	Q0819	Identify pinworms
3	Q0821	Perform concentration procedures
4	Q0824	Perform fecal fat screens
5	Q0825	Perform fecal occult blood screens
6	Q0827	Perform fecal reducing substance screens
7	Q0828	Perform fecal white blood cell smears
8	Q0830	Perform macroscopic examinations of parasitology specimens, such as color, appearance, or consistency

0015	ST0547	Parasitology (Continued)
9	Q0832	Perform permanent stains, such as iodine or trichrome
10	Q0836	Prepare fecal specimens for direct examinations
11	Q0837	Preserve fecal samples for parasitological examinations
0016	ST0396	Hepatitis Testing
1	J0490	Perform hepatitis A antibody tests, IgM
2	J0491	Perform hepatitis B core antibody tests, IgG
3	J0492	Perform hepatitis B core antibody tests, IgM
4	J0495	Perform hepatitis Bs antibody tests
5	J0496	Perform hepatitis Bs antigen tests
6	J0498	Perform hepatitis C antibody tests
7	K0559	Perform HIV tests
0017	ST0460	Immunology/Serology
1	J0468	Perform CH50 complement tests
2	J0494	Perform hepatitis Be antigen tests
3	K0527	Perform anti-DNA antibody titers
4	K0528	Perform anti-DNA screens
5	K0539	Perform CMV titers
6	K0547	Perform Epstein Barr titers
7	K0548	Perform extractable nuclear antigen (ENA) profiles
8	K0555	Perform herpes titers
9	K0564	Perform Legionella screens
10	K0565	Perform Legionella titers
11	K0574	Perform mycoplasma titers
12	K0589	Perform rubeola titers
13	K0594	Perform toxoplasma titers
14	K0600	Perform Western-Blot tests
0018	ST0114	Microbiology
1	F0215	Measure drops-per-ml from dispensing needles
2	F0222	Perform hemagglutination inhibition (HAI) tests
3	K0529	Perform antistreptolysin O (ASO) titers
4	K0537	Perform chlamydia screens
5	K0541	Perform cold agglutinin titers
6	K0572	Perform mononucleosis tests using latex
7	K0583	Perform rheumatoid arthritis screens
8	K0584	Perform rheumatoid arthritis titers
9	K0587	Perform rubella screens
10	K0588	Perform rubella titers
11	K0590	Perform streptozyme screens
12	K0591	Perform syphilis screens
13	K0592	Perform syphilis titers

0019	ST0466	Research
1	H0285	Collect or preserve cultures or samples from laboratory animals
2	H0286	Develop technical protocols for research projects
3	H0288	Perform care or handling of laboratory animals
4	H0301	Perform primary cell cultures on tissues
0020	ST0313	Equipment/Supply
1	E0132	Annotate shopping guides
2	E0133	Brief supervisors concerning purchases of equipment, supplies, or reagents
3	E0135	Complete equipment request forms
4	E0136	Complete purchase request forms, other than for equipment
5	E0144	Initiate blanket purchase agreements (BPAs)
6	E0145	Initiate maintenance requests for military or contractor maintained equipment
7	E0149	Inventory equipment, tools, or supplies
8	E0151	Issue or log turn-ins of equipment, tools, or supplies
9	E0154	Maintain activity issue, back order, or issue turn-in lists
10	E0158	Maintain organizational equipment or supply records
11	E0159	Maintain property custodian authorization/custody receipt listings (CA/CRLs)
12	E0162	Maintain supply stock levels
13	E0167	Perform receiving inspections of incoming equipment
14	E0172	Prepare requisitions for equipment, tools, or supplies, other than for local purchase
15	E0173	Prepare requisitions for local purchase of equipment, tools, or supplies
16	E0181	Review equipment request forms
17	E0182	Review purchase request forms
18	E0183	Track equipment purchases
19	E0184	Turn in equipment, tools, or supplies
0021	ST0135	Training
1	B0060	Supervise Medical Laboratory Apprentices (AFSC 4T031)
2	D0098	Administer or score training tests
3	D0099	Assign on-the-job training (OJT) trainers or supervisors
4	D0100	Brief organizational personnel on training programs or matters
5	D0101	Conduct continuing technical education classes
6	D0104	Conduct OJT, such as upgrade training or qualification training
7	D0105	Conduct resident course classroom training
8	D0107	Construct or develop training materials or aids
9	D0108	Counsel trainees on training progress
10	D0109	Determine OJT upgrade or resident course training requirements
11	D0110	Determine training requirements, other than OJT or resident course training requirements
12	D0112	Develop equipment training programs
13	D0114	Develop or prepare lesson plans
14	D0115	Establish or maintain study reference files
15	D0116	Evaluate effectiveness of training programs

0021	ST0135	Training (Continued)
16	D0117	Evaluate effectiveness of training, such as career knowledge upgrade, job proficiency upgrade, or qualification training
17	D0118	Evaluate or inspect training materials or aids for operation or suitability
18	D0119	Evaluate personnel for training needs
19	D0120	Evaluate progress of trainees
20	D0121	Evaluate training methods or techniques
21	D0122	Maintain training records, charts, graphs, aids, devices, or files
22	D0123	Monitor effectiveness of training programs
23	D0124	Participate in continuing education classes, other than conducting
24	D0125	Plan or schedule OJT
25	D0126	Prepare job qualification standards (JQSs)
26	D0127	Prepare student withdrawal or entry forms
27	D0128	Procure training aids, space, or equipment
28	D0129	Select or schedule personnel for specialized training
29	D0130	Write test questions
30	D0131	Write training reports
0022	ST0119	Computer Systems
1	G0260	Configure computers to interface with laboratory equipment
2	G0261	Coordinate designs or modifications of computer programs with programmers
3	G0262	Distribute or deliver computer output products
4	G0266	Fabricate computer cables
5	G0267	Initiate or update computer directed instruction
6	G0268	Isolate causes of computer stops or malfunctions
7	G0269	Maintain access lists of personnel authorized use of on-line devices
8	G0270	Maintain lists of authorized software
9	G0271	Maintain off-site or remote storage backup files
10	G0273	Maintain work order logs for computer systems
11	G0274	Modify existing software to meet local needs
12	G0276	Perform minor repairs of computer equipment
13	G0277	Perform preventive maintenance on computer hardware
14	G0278	Perform system analyses on laboratory information systems
15	G0281	Test new computer hardware or software products
16	G0282	Troubleshoot computer stops or malfunctions
17	G0283	Write laboratory computer programs
0023	ST0646	Histopathology
1	T0877	Assist physicians in surgical gross procedures
2	T0879	Clean and disinfect gross rooms
3	T0881	Dispose of wet tissues
4	T0882	Notify pathologists of daily workloads
5	T0883	Perform decalcification procedures
6	T0884	Perform frozen sections
7	T0885	Perform operational checks of gross room instruments

0023	ST0646	Histopathology (Continued)
8	T0887	Perform specimen accessioning procedures
9	T0893	Process tissues
10	T0894	Replace tissue processor reagents, such as alcohol or xylene
11	T0895	Store wet tissues
12	U0896	Coverslip tissues
13	U0897	Distribute completed slides to pathologists
14	U0898	Embed tissues
15	U0899	Evaluate histopathological procedures
16	U0900	Evaluate samples for subsequent procedures
17	U0901	File tissues, blocks, or slides
18	U0902	Identify tissues macroscopically
19	U0903	Label tissues or slides
20	U0905	Perform QC of sectioning instruments
21	U0906	Perform QC of stainline reagents
22	U0907	Perform routine staining procedures
23	U0908	Prepare sectioning adhesives
24	U0909	Repair slides
25	U0911	Section tissues
26	V0912	Identify tissues microscopically
27	V0914	Perform QC on special staining procedures
28	V0917	Perform special stains to identify amyloids in tissues
29	V0918	Perform special stains to identify connective tissues
30	V0919	Perform special stains to identify fats and lipids in tissues
31	V0920	Perform special stains to identify infectious agents
32	V0921	Perform special stains to identify mucopolysaccharides
33	V0922	Perform special stains to identify nerve tissues
34	V0923	Perform special stains to identify pigments and minerals
35	W0924	Assist pathologists in removal of body organs
36	W0925	Clean and disinfect morgue instruments
37	W0926	Collect bacteriology specimens
38	W0929	Disinfect autopsy areas
39	W0930	Gather autopsy documentation
40	W0931	Gather autopsy instruments and supplies
41	W0932	Label and store autopsy specimens
42	W0933	Make entries on autopsy logs
43	W0934	Perform autopsy gross procedures
44	W0935	Perform operational checks on morgue instruments
45	W0936	Prepare bodies for postmortem examinations
46	W0937	Prepare bodies for release
0024	ST0418	Environmental Lab
1	H0289	Perform chemical analyses on air samples
2	H0291	Perform chemical analyses on filters
3	H0292	Perform chemical analyses on industrial products
4	H0293	Perform chemical analyses on soil samples

0024	ST0418	Environmental Lab (Continued)
5	H0294	Perform chemical analyses on waste samples
6	H0295	Perform chemical analyses on water samples
7	H0314	Prepare filters for chemical analyses
8	H0317	Prepare soil samples for chemical analyses
9	H0319	Prepare waste samples for chemical analyses
10	H0321	Prepare water samples for chemical analyses

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APPENDIX C

**LISTING OF POI J5AZO92450, PHASE II
MEDICAL LABORATORY SPECIALIST
UNSUPPORTED TRAINING OBJECTIVES**

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APPENDIX C

<u>POI REFERENCE/TASKS</u>		IST JOB (N=136)	IST ENL (N=424)
IXa5	Collect and tabulate workload recording data G272 Maintain workload data using computers	8	13
IXb1 (25 Specimens)	Perform serological tests for syphilis and the applicable quality control products without assistance K591 Perform syphilis screens K592 Perform syphilis titers	24 13	28 15
IXb2 (25 Specimens)	Perform serological tests for infectious mononucleosis and the applicable quality control procedures without assistance K572 Perform mononucleosis tests using latex	13	21
IXb3 (10 Specimens)	Perform serological titration procedures for cold agglutinins and the applicable quality control procedures without assistance K541 Perform cold agglutinin titers	17	22
IXb4 (10 Specimens)	Perform serological test for rheumatoid arthritis and the applicable quality control procedures without assistance K583 Perform rheumatoid arthritis screens K584 Perform rheumatoid arthritis titers	19 11	21 13
IXb5 (10 Specimens)	Perform serological tests for streptococcal antibodies and the applicable quality control procedures without assistance K529 Perform antistreptolysin O (ASO) titers K590 Perform streptozyme	10 8	10 7
IXb6 (20 Specimens)	Perform procedures for pregnancy testing and the applicable quality control procedures without assistance J467 Perform chronic gonadotropin human beta subunit (HCG-B) screens J511 Perform quantitative HCG-B tests	10 16	10 20
IXc2c	Perform antibody cell panel L624 Perform antibody titers	18	13
IXc2d	Perform elution procedures L628 Perform elution tests	16	15

APPENDIX C (CONTINUED)

<u>POI REFERENCE/TASKS</u>		IST JOB (N=186)	IST FML (N=124)
IXc2e	Perform antibody titrations L624 Perform antibody titers	18	13
IXc3b	Perform Rho immune globulin eligibility tests (10) L641 Perform Rho immune globulin eligibility testing	12	15
IXc3e	Perform transfusion reaction workups L613 Investigate transfusion reactions	16	17
IXc3f	Prepare and issue group and type specific blood or components for transfusions L646 Select fresh frozen plasma L650 Prepare washed RBCs	2 7	1 6
IXc3h	Perform procedures for neonatal and/or exchange transfusions L655 Select packed cells	11	14
IXc3l	Perform component inventories and resupply procedures (5) L604 Complete blood products shipping inventory forms	17	21
IXc3m	Properly dispose of outdated units L616 Maintain blood inventories	20	27
IXc4a	Maintain an active donor roster L602 Annotate blood donor forms	20	22
IXc4c	Screen donors to obtain correct information L653 Screen donors for blood or blood collections	6	8
IXd5	Calculate erythrocyte indice parameters (MCV, MCH, MCHC). The calculations listed must be performed without instructor assistance M661 Calculate erythrocyte indices using handheld wheels M662 Calculate erythrocyte indices using indices calculator M663 Calculate erythrocyte indices using mathematical formulas	5 9 16	3 8 12

APPENDIX C (CONTINUED)

POI REFERENCE/TASKS

IST JOB (N=186)	IST FNL (N=424)
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IXd10 (10 Specimens)	Using your method of choice, perform G-6-PD screens with limited instructor assistance on the hardest procedural steps		
	I383 Perform glucose-6-phosphate dehydrogenase (G-6-PD) screens manually	27	29
	I384 Perform G-6-PD screens using chemical analyzers	9	7
IXd20	Collect and tabulate workload recording data		
	G272 Maintain workload data using computers	8	13
IXe3a	Serum Amylase		
	I345 Perform amylase tests manually, other than amylase isoenzyme tests	3	4
	I346 Perform amylase tests using chemical analyzers, other than amylase isoenzyme tests	22	29
IXe3j(1)	Amalase		
	I346 Perform amylase tests using chemical analyzers, other than amylase	22	29
IXe3j(2)	Electrolytes		
	I369 Perform chloride tests using ISE	9	16
	I436 Perform potassium tests using ISE	13	22
	I448 Perform sodium tests using ISE	15	22
IXe3o(1)	Na		
	I446 Perform sodium tests using atomic absorption	1	1
	I447 Perform sodium tests using flame photometers	1	0
	I448 Perform sodium tests using ISE	15	22
IXe3o(2)k			
	I435 Perform potassium tests using chemical analyzers	2	1
	I436 Perform potassium tests using ISE	13	22
IXe5	Perform toxicology procedures with limited instructor assistance on the hardest procedural steps		
	S855 Determine drug concentration levels using gas chromatography	4	2
	S856 Determine drug concentration levels using gas chromatography		

APPENDIX C (CONTINUED)

POI REFERENCE/TASKS		1ST JOB (N=186)	1ST ENL (N=424)
IXE5 (Continued)	Perform toxicology procedures with limited instructor assistance on the hardest procedural steps		
	S857 Perform amphetamine screens using RIA	4	3
	S858 Perform barbiturate screens using RIA	4	3
	S859 Perform chemical extraction's of amphetamine derivatives	4	3
	S860 Perform chemical extraction's of barbiturate derivatives	5	3
	S861 Perform chemical extraction's of cocaine derivatives	4	3
	S862 Perform chemical extraction's of opiate derivatives	4	3
	S863 Perform chemical extraction's of phencyclidine (PCP) derivatives	4	3
	S864 Perform chemical extraction's of tetrahydrocannabinol (THC) derivatives	3	3
	S865 Perform cocaine screens using RIA	2	2
	S866 Perform instrumental analyses of amphetamines	6	7
	S867 Perform instrumental analyses of barbiturates	6	7
	S868 Perform instrumental analyses of cocaine	5	6
	S869 Perform instrumental analyses of opiates	5	6
	S870 Perform instrumental analyses of PCP	4	6
	S871 Perform instrumental analyses of THC derivatives	3	4
	S872 Perform lysergic acid diethylamide (LSD) screens using RIA	2	1
	S873 Perform non-RIA screening for drugs of abuse	1	3
	S874 Perform opiate screens using RIA	2	1
	S875 Perform PCP screens using RIA	2	1
	S876 Perform THC screens using RIA	1	1
IXe8	Collect and tabulate workload recording data		
	G272 Maintain workload data using computers	8	13
IXg5a	Kirby-Bauer		
	O745 Perform agar dilution susceptibility tests	4	4
	O761 Perform disc diffusion susceptibility tests, such as Kirby-Bauer	18	17

APPENDIX C (CONTINUED)

<u>POI REFERENCE/TASKS</u>		IST JOB (N=186)	IST ENL (N=424)
IXg5b	MIC (10 Organisms)		
	O755 Perform broth dilution susceptibility tests	6	4
	O773 Perform minimum inhibitory concentration (MIC) susceptibility tests	20	22
IXg7	Perform microbiological quality control procedures and maintain appropriate records without instructor assistance		
	O743 Maintain stocks of QC organisms	28	27
	O788 Perform QC tests on autoclaves	5	7
IXh2a	Potassium hydroxide (KDH)	18	22
	P811 Perform potassium hydroxide (KDH) preparations		
IXh2b	Direct fecal preparation		
	Q836 Prepare fecal specimens for direct examinations	23	21
IXh3a	India ink preparation		
	O772 Perform India ink tests	12	15
IXh3b	Wet prep		
	O725 Examine biological specimens using wet-mount microscopy	27	29
	O729 Examine stains using wet-mount microscopy	19	14
IXh5	Correctly perform concentration procedures for the isolation of medically important parasites found in biological specimens without instructor assistance		
	Q821 Perform concentration procedures	18	17
IXh6a	Trematodes		
	Q813 Identify parasites, other than pinworms, including helminths, arthropods, or protozoa	25	20
	Q832 Perform permanent stains, such as iodine or trichrome	19	18
IXh6b	Nematodes		
	Q818 Identify parasites, other than pinworms, including helminths, arthropods, or protozoa	25	20
	Q832 Perform permanent stains, such as iodine or trichrome	19	18

APPENDIX C (CONTINUED)

<u>POI REFERENCE/TASKS</u>		IST JOB (N=186)	IST FNL (N=424)
IXh6c	Cestodes		
	Q818 Identify parasites, other than pinworms, including helminths, arthropods, or protoza	25	20
	Q832 Perform permanent stains, such as iodine or trichrome	19	18
IXh6d	Protoza		
	Q818 Identify parasites, other than pinworms, including helminths, arthropods, or protoza	25	20
	Q832 Perform permanent stains, such as iodine or trichrome	19	18